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THE BRICKBVILDER

OFFICE 85 WATER STREET BOSTON

THE BRICKBUILDER.

AN ILLUSTRATED MONTHLY DEVOTED TO THE ADVANCEMENT OF ARCHITECTURE IN MATERIALS OF CLAY.

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FIRE-PROOFING.

THE old adage that "Necessity is the mother of invention" accounts for a very large proportion of the advance which has been made at different times in constructive methods. Probably no country in the world has ever developed its structural architecture so speedily as the United States, and certainly no other country has had as many object lessons to teach what to avoid. Experience keeps a very dear school, and though it may hardly be fair to say that we belong to the numerous category of those individuals who will learn in no other, it is a fact that our best lessons have been derived from our worst failures. Elsewhere in these columns we comment at some length upon some of the more manifest lessons of the New York fire, a catastrophe which will undoubtedly lead to improvements in some of the details of our construction, just as it has demonstrated the value of certain accepted methods of fire protection. This country has not, however, arrived by one step at the construction which stood the fire so successfully last month. We can all remember the long period when mediums were used and methods were employed which would not now be tolerated for a moment, but which were supported by much the same arguments that are used now in favor of our hollow-tile arches and terra-cotta protection. It was then claimed that those methods and materials would stand fire and water to just the same extent that the systems now in the market claim complete immunity for themselves. Our eyes in the past were opened not so much by our investigations as by the stern teachings of hard experience. We learned that all materials were not immaculate, and by a process of natural selection and the acceptance of the fittest the best constructive minds of this country have agreed upon terra-cotta and brick as the only materials which can be depended upon to withstand the extreme action of fire. The Home Life Building is an epitome of the experiences of the past twenty-five years. The failures therein have a manifest cause; the successful resistance is due to preconceived methods. It rests now with the profession to assimilate the results of failure and to eliminate the possibility of a repetition of disasters of this sort; for a disaster it certainly is. The fact that the steel frame was not materially affected is a triumph for that particular detail of the construction; but a building which can have its upper six stories gutted, in which the fire can travel from room to room, even though it takes only one floor at a time and all the start comes from outside, certainly leaves something to be desired. The New York *World*, in an editorial of December 5, sums up the two most prominent morals of this fire: —

"Moral No. 1: If the Rogers, Peet & Co. building had been reasonably fire-proof, there would have been no fire in the buildings of its neighbors, the Home Life and the Postal Telegraph Companies. Why should any but fire-proof buildings be allowed in the city? Moral No. 2: When a fire-proof building is put up, its owners ought to insist that no furniture or curtains or anything else should be put into it without first being fire-proofed by a perfectly simple and inexpensive treatment with tungstate of soda. It was the furniture and that sort of thing which destroyed the upper stories of the Home Life Building last night."

The fact is that our modern business methods and modern constructions have advanced much more rapidly than the science of the prevention of fires. We can build a fire-proof building without any difficulty, but we cannot construct either fire-proof tenants or a fire-proof fire department; and so long as a great municipality will permit such structures as that in which this fire started to exist in the very heart of the business district, disastrous results must be expected to adjoining structures, no matter how scientifically they may be constructed. All our great cities are undergoing at present a species of regeneration. The old structures are disappearing, and new buildings, built to resist fire within and without, are rapidly taking their places; but any transition state of this kind has its dangers. The risk to a modern fire-proof building through its neighbors is not anywhere near as great as it was ten years ago, and the more fire-proof buildings that are erected, the more the chances are lessened of such a result as accompanied the conflagration of December 4. The fact still remains that not a single properly constructed fire-proof building in this country has ever been destroyed to any considerable extent by a fire starting within its own walls.

HIGH BUILDINGS.

IT seems to be quite the fashion just at present for officials to voice a certain amount of public sentiment in regard to a curtailment of height of commercial structures. Governor Wolcott, of Massachusetts, in his inaugural address, urged upon the Legislature the advisability of restricting the areas in the neighborhood of the State House, so that no high structure can be erected thereon. Mayor Quincy, of Boston, in his message to the Common Council, alluded to a certain Commonwealth Avenue hotel, which is the only one on that street carried to a height greater than about 80 ft., and expressed the hope that some way might be devised for compelling the removal of the upper portion of this building. The subject of

high buildings is very largely a personal one. The real-estate owner who desires to draw all the income possible from his property puts up a tall building and objects to his neighbor doing likewise. The architect and the lawyer, who seek light and air and the outlook, will take the top story in preference, and will be very indignant with the neighbor across the street who blocks the view with a similar sky-scraper. Fifteen years ago no one would have dared to predict the present extreme expansion of tall buildings. Fifteen years hence we may look back with horror, or we may look down on them from structures so much higher that these will seem small by comparison. Whether these tall structures are right or wrong, whether the principle is pernicious, or whether we are only just beginning to fly, there is one indisputable fact: that the tall commercial structures of to-day have done more to teach architects and constructors how to build, how to use material, what material to use, and how to executively handle large work, than would have been possible with a dozen generations of the kind of buildings which were called first class a generation ago. They have served and are still serving a useful purpose in our architectural development. We may grow out of them and may regret our own flights of fancy, but surely no architectural problem was ever more resolutely adapted nor more scientifically nor, on the whole, satisfactorily solved than these very sky-scrapers.

EXTENSION OF FIRE LIMITS IN BOSTON.

THROUGH the energetic efforts of Mayor Quincy, the question of the extension of the so-called fire limits in the city of Boston is again up for consideration. A commission is in process of formation, including representatives from the Society of Architects, the Master Builders' Association, and the Real Estate Exchange, which is to consider the advisability of so amending the existing laws that the area within which anything but brick buildings shall be tolerated shall be considerably extended. This is emphatically a movement in the right direction and will undoubtedly result in materially lessening the fire risk of the city. A brick building is by no means necessarily a fire proof one, but it is certainly a great deal better than the fungous growths of wooden structures which flourish so luxuriantly in the debatable line between the residence and the business sections of the city.

PERSONAL AND CLUB NEWS.

PARR & HULSEBUS, architects, have opened an office in the Y. M. C. A. Building, Peoria, Ill.

HARVEY J. BLACKWOOD, architect, Scranton, Pa., has removed his offices to the Connell Building.

EDGAR V. SEELER, architect, Philadelphia, has removed his offices to the Real Estate Trust Building, Broad and Chestnut Streets.

MR. BAGGALEY, of Pentecost & Baggaley, architects, Buffalo, N. Y., has retired from that firm and taken up his residence in England. Mr. Pentecost will continue the business at 406 Fornes Building, Buffalo.

THE PRATT INSTITUTE, Brooklyn, N. Y., is holding an exhibition of a collection of antique European and Oriental textiles. The exhibit closes January 31.

THE WASHINGTON ARCHITECTURAL CLUB held its regular meeting January 7. The subject for the evening was a competition for "A Station House for the District of Columbia." The criticism was led by Mr. Snowden Ashford, and the competition was won by Mr. G. A. Dessez.

THE fourteenth annual exhibition of The Architectural League of New York will be held from Saturday, February 11, to Saturday, March 4, inclusive, in the building of the American Fine Arts Society, 215 West 57th Street, New York City. Exhibition hours: 10 A. M. to 6 P. M.; 8 P. M. to 10 P. M; Sundays, 12 M. to 6 P. M. The annual dinner of the League occurs Thursday, February 9, at 7 P. M.

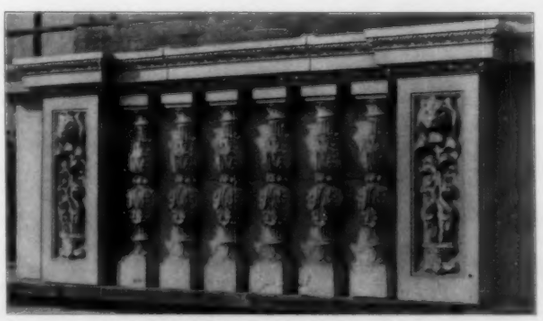
THE third annual "smoker" of the Pittsburgh Architectural Club was held in the studios of Mr. H. S. Stevenson, 413 Wood Street, on Friday evening, Dec. 23, 1898. Mr. Edward Stotz, architect, gave a talk on "Shadows." The musical program was given under the direction of Mr. Frank T. Thuma and Mr. David T. Moore. Committee, Messrs. W. H. Stulen, S. C. Irwin, and R. G. Dickson.

RECENT happenings at the Chicago Architectural Club are as follows: On Monday evening, January 9, Mr. Dwight Heald Perkins addressed the club, his subject being "A Study of Recent International Expositions." The lecture was illustrated by the stereopticon. Monday evening, January 16, Mr. Thomas Jones read a paper on "Plastering." An interesting discussion followed. The drawings for the Church Window Competition were on exhibition during the evening.

THE PITTSBURGH ARCHITECTURAL CLUB has commenced a series of competitions to be held during the winter months. The club has been fortunate this year in obtaining rooms at the Carnegie Institute, and is carrying on its work with a great deal of success. Two classes have been started: one in drawing from cast and one in modeling, both under the best of instructors. December 23, the club held a smoker at the studio of Mr. H. S. Stevenson. It is to be regretted that the club, in connection with the local chapter of the American Institute of Architects, has given up holding an exhibition this year.

ILLUSTRATED ADVERTISEMENTS.

CONKLING-ARMSTRONG TERRA-COTTA COMPANY, page v, details of Crozer Building, Philadelphia; Frank Miles Day & Bro., architects. This illustration is one of a series



BALUSTRADE ON RESIDENCE BLOCK, CENTRAL PARK, WEST, NEW YORK CITY.
Executed by the New York Architectural Terra-Cotta Company.
James E. Ware & Son and Herbert S. S. Harde, Associate Architects.

which is to be selected from their recently issued and beautiful catalogue, and to be shown in their advertisement.

Fiske, Homes & Co., page x, a new mercantile building, Boston; Gay & Proctor, architects.

Raritan Hollow and Porous Brick Company, page xx, Home Life Insurance Building, New York City (damaged by fire); N. Le Brun & Sons, architects.

Ludowici Roofing Tile Company, page xxvi, Presbyterian Church, Evanston, Ill.; D. H. Burnham & Co., architects.

The Celadon Terra-Cotta Company, Ltd., page xxvii, Grove Hall Engine House, Boston, Mass.; Perkins & Betton, architects.

Bricks and Tiles for Interior Finishing. I.

BY RUSSELL STURGIS.

ONE of the hygienic maxims or principles of Dr. Richardson,—him of the "model City of Health,"—was that the interior walls and ceilings of rooms must absolutely be made of non-absorbent material, or, at least, that their surfaces be made non-absorbent. Glazed or enameled tiles and bricks[1] were obviously the materials which the doctor had in mind, and they are those which would occur to any builder or architect who might consider the possibility of carrying out this counsel of perfection. We have all of us tried the experiment, or proposed, or wished to try the experiment, of lining a hospital ward with glazed brick or tile, floor, wall, and ceiling alike, and that with rounded corners, so that the ward might be emptied of its beds and of other furniture once in so often, and then subjected to the rigorous purgation of a fire hose. The tiles which would be used for such a purpose as this would be most commonly inexpensive, soft-paste squares of baked clay with a very high gloss on one side; but those for the floor need to be very hard, and with a resistant quality in their enamel, which most of the tiles in the market do not possess; those of the dado, or lowermost 6 ft., more or less, of the wall need to be nearly as hard as those of the floor, while those of the upper wall and the ceiling may be soft and proportionally cheap. Perhaps, indeed, a finish of such a high gloss is not absolutely necessary. Among all the dull tiles and hard face-bricks now on the market there may well be found, on testing, many which are sufficiently non-absorbent to meet sanitary requirements:—certainly many as efficient, in this respect, as plaster and, moreover, free from the danger of cracking and of having holes knocked in them. Such brick and tile would be, generally, even less expensive, and far more effective in the way of decoration than those of high finish. All this is non-decorative. A very pretty effect of pale tints may indeed be got, and those in a hospital ward may be as subdued in tint as the directing physician or the authorities in charge of the structure might decide, for all shades of green and gray are within reach of the skilled tile-maker. But this, as has been said, is not exactly decorative work. Those who are familiar with the ground floor rooms of the Café Savarin, in New York, in the basement of the Equitable Life Insurance Company's building, and occupying the front on Pine Street with a return on Broadway, will remember the very pleasing effect of these low, large rooms divided by stout and stumpy, round columns, and lined and faced everywhere, columns, walls, and ceiling, with enameled tiles of a rather bright buff tone, in the reflecting surface of which a thousand repetitions of the electric bulbs repeat one another forever. The result is not so dazzling to the eyes as might be supposed, for the multiplicity of little points of light produces the effect of a general uniform illumination which is very agreeable, and the buff tone is sufficiently subdued, sufficiently "off white," to prevent the glare which weak eyes fear the most. The restaurant in the basement of the Dunn Building, at the corner of Broadway and Leonard Street, New York, opened for the first time in the summer of 1898, shows a further use of color in glazed surfaces than had been previously attempted in modern business buildings at least. Here there is an effect similar to that in the Café Savarin, but with a good deal more deliberate attempt at decoration. The difference between these two interiors is practically the difference between the room which seeks only to be pleasing in general effect, neat, smooth, and highly finished and thoroughgoing in appearance, and the room which has more pretense at artificial decoration.

FIG. 1.

Now, there are two ways of lining a room or a passageway with baked clay; and one of these is the way of surface finishing, such as has been dealt with in the previous paragraph. There is nothing to be said against it; the wall which, in our larger cities at least, will usually be of brickwork, solid and good enough in all fairly well planned and well handled buildings, allows of being coated with tile of any shape and any sort. We shall see in a moment that there are many shapes and many sorts which are quite available for our purpose. The other plan, the constructional plan, is certainly in many ways more interesting. It is more interesting because of its very difficulty. Let us suppose that the architect has, as all architects should have, a strong desire to get his decorative effect out of the very structure itself. He will then find that he wishes very much to build the interior face of his wall with enameled bricks, whereby the interior face of his wall will be of one mass with the solidity of the wall itself. He will then be led to consider, in advance, the place in his interior wall surface for the richer band of inlaid color near the ceiling and the plainer echo of it below, the possible addition of relief patterns, and so on. We are all familiar with enameled bricks, because the courtyards of the great business buildings are lined up with them. Those in the courtyards are white or cream colored, or of a very light gray, and this because their very object—

FIG. 2.

the very reason for their presence—is their reflecting quality and the way in which they retain that reflecting quality though soiled with smoke or stained with the weather. Already considerable progress has been made in producing enameled bricks of good tints ranging from "off white," through all gradations of yellow and buff,

[1] Let us maintain the distinction of "enameled" for that which is covered with an opaque coat; "glazed" for that which has a transparent covering.

to reddish browns; and even more decided colors are not rare. Besides the examples mentioned above, agreeable effects are to be seen in the courts of the Congressional Library at Washington, and in the soffits of the floor arches of the eastern extension of the Grand Central Station, New York. Even better shades will be given us undoubtedly; and for the present, where stronger color is desired, and the thin surface tile, applied after the wall is built, is what we have to consider.

One of the pavilions in the Paris Exhibition of 1878 was walled with painted tiles of the most splendid sort. The lunette over the great doorway of entrance, with its triumphal composition of Grecian architecture, was painted on small square tiles. On similar tiles was painted a much larger composition under the arch on either hand which made up the triple arcade. In each, a single landscape picture embraced at once the great lunette, in which were the tops of the trees and their spreading branches, and the smaller square frame below, in which were seen the trunks of the same trees and a landscape foreground with rocks, buildings, and water. This was treated as if a landscape seen through the openings of an architectural screen, which screen was made up of two Ionic pilasters with their entablature and niches on either side. Two arched, window-like panels, one on either side of the large landscape picture, were filled with figure subjects, and these also were painted on small tiles.

Fig. 1 shows a detail of similar work in the Paris Exposition of 1889. A fantastic Japanese figure embodies tobacco and the joys of smoking; an idealized German country woman stands for the hop and the delights of beer. No matter what advertising names are given to this painting, it remains good, old-fashioned ceramic decoration still.

FIG. 3.

Every one has seen in a museum trophies of Persian tile brought at immense cost from the Levant, and in which a decorative or pictorial composition is carried out in a great number of separate tiles, each piece 5 or 6 ins. square. The French example discussed above is interesting as showing how the modern requirements of the European world are more readily to be met than by any more direct imitation of the Oriental originals. When color decoration becomes rich and elaborate with us of European blood, it is much easier to find it in realized pictorial composition, such as can be matched and executed easily and readily by the highly trained men whom we call artists in painting, than to resort to any more purely decorative scheme. The mural painter carries it over the decorator as soon as the work becomes rich. The first-named Parisian example was on a great scale, of course. The panels of figure subject were less than 6 ft. high in the clear, and the total height of the large landscape picture was at least 30 ft.; so that the trees may almost be said to be of natural size. Such majestic decoration as that will stand us in good stead, if we bear it in mind as a possibility to be realized only in those rare cases when an architect finds that space and funds alike are ample, and that he can for once have his way. In domestic interiors, and even in the rooms and halls of government buildings, civic buildings, municipal buildings, a somewhat smaller scale of adornment must certainly be adopted. Such a smaller scale is seen in use in the frieze of the dining room shown in Fig. 2. The subjects here are the fairy tales of childhood and the tales of adventure beloved by youth, — the "Arabian Nights," the French stories collected by Perrault, Peter Wilkins and his Flying Island, "Robinson Crusoe," and the rest. These schemes are carried out on rather large squares of tile, for the frieze must be nearly 4 ft. wide in the clear, and the tiles themselves at least 9 ins. square. This, however, is indifferent; and many an artist would prefer the broken and irregular effect produced by many more squares, many more joints, and many more of those diversities and inequalities of surface which come of putting together pieces of material which have been made separately and which there is no means, fortunately, of scraping down to a dead level. If, however, these decorations again are not too large, at least too costly, — altogether out of reach of the ordinary adorner of dwelling houses, of town halls, of libraries, — let us consider the design shown in Fig. 3, in which conventional groups of familiar flowers are seen, each with its name displayed in medieval fashion by means of letters, which do not follow one another with any great regularity, each group being contained in its own painted arch of the little arcade which forms the main composition. In the center of the picture are iris, called here "purple flag," and tulips, directly over the head of the bed. Poppies, hyacinths, and foxgloves are on the left; anemones of the large and showy kind known to travelers in Italy and California, chrysanthemums, and "the miter lily" are on the right. It is hardly necessary to say that the formalizing of flowers which are otherwise treated naturalistically is rather disagreeable to the eye which has not been trained in that singular school of decoration of which William Morris is the best known master. It is not thus that one would have his floral compositions made up. And yet the suggestion is clearly intelligent and clearly attractive; and if this can be done, anything can be done in the way of floral ornamentation.

FIG. 4.

Another course is open to the architect of neo-classic tastes, and who demands rather panels which he can enclose in an architectural framework than continuous broad friezes. Fig. 4 is a panel of modern Sèvres porcelain, and this as a *tour de force* is painted on a single slab. But that is an inessential detail. The effect would be finer if it were enlarged and painted upon about twelve square tiles.

One word more before the subject of enameled tile is abandoned. When tile or brick without an enameled surface are used for wall lining, and, indeed, when any other material than tiles or bricks are used, enameled tile are still of the greatest value when used for the dado. Up to a height of 4 ft. in some cases, of 6 or 7 ft. in other cases, the wall should really be covered with a hard, resistant, non-absorbent material, and for this purpose, while marble is excellent, tiles are still better, because they can easily be made still more incapable of absorbing impurity, and because, also, the decoration which can be put upon them is immeasurably more interesting than even the most beautiful veins and stains of the natural material. This subject of dado, then, might be treated by itself and at considerable length, but it is only possible to say here that it would be well if our makers of tiles would give us in their richly illustrated catalogues some suggestions of what they are ready to offer in this direction.

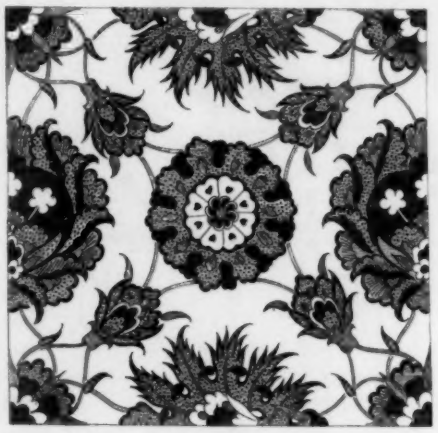


FIG. 5.

The mention of trade catalogues and the thought of the tiles which are commonly offered in the market bring up the serious consideration of patterns for a large continuous surface. There is, of course, the mosaic which is made of separate pieces of baked clay; small square, specially shaped, or irregular tesseræ, or 4 in. and larger flat tiles.

But it is mainly the painted tiling and its patterns which are now in question. There are two kinds of patterns which are to be discussed, namely, diaper and that which, though often classed as a kind of diaper, is more properly called a sowing or semé. Heralds maintain this distinction, and they are right. If, for instance, you adorn a surface of velvet with an embroidered fleur-de-lis repeated over and over again, you have not a diaper but a sowed or semé pattern. A diaper pattern is, more properly, one of which the unit of design constantly repeats itself without break, or in which two or even three units alternate and in like manner flow one into the other. The essence of the distinction is that nowhere must the unit of the diaper be a wholly independent and isolated figure. The semé pattern, while adopted for stuffs and embroideries, that is to say, for curtains, for hangings, for dress, and the like, where the folds of the stuff give it irregularity and break its monotonous repetition, is extremely dangerous for flat wall surfaces. In tile work it is peculiarly important to avoid the pattern of isolated figures, because the tendency will then be to paint one figure upon a tile and then to face the wall with hundreds of such tiles put edge to edge. Any one who has observed the effect of this kind of pattern in use will feel the unfortunate effect that it produces.

The diaper pattern, on the other hand, is capable of greater refinement, because of the passing of one element of the pattern into another, and it is also devoid of that strong tendency towards spottiness of effect which is the fatal characteristic of semé patterns. Some of the most splendid compositions of purely decorative character in the world are those which are to be found upon large surfaces of tile in Persian and in Cairene mosques. Two examples, from Persian mosques, are seen in Figs. 5 and 6. The conventional flower design is apt to be extraordinarily effective, and a larger surface can be adorned in this way, it is found, than by any other constantly recurring pattern whatever. Still, however, those who are familiar with photographs of the interiors of Oriental mosques, as in Cairo, are aware how monotonous, how dull, how heavy, can be the effect of these large surfaces of wall covered with constantly recurring pattern. Nor is it to be alleged that the absence of color and the substitution of the rather ugly purplish brown of the photograph explain this monotonous look of the wall surface. The loss, in the small scale of the photograph, of the irregularities, the breaks, the uncertainties, and inequalities of surface of the original makes a greater difference, but still the general effect of large wall surfaces covered with even the best diaper patterns, especially if in strong contrast with the background, is depressing. The modern designer for tile decoration should, therefore, be ready to imagine and to realize separate compositions: sometimes vertical candelabra with a decided foundation, or root, and an equally decided termination at the top; sometimes boskets of trees or bouquets of flowering plants.

A century ago the Chinese used to send to England and Holland and to the richer towns of our own Atlantic seaboard, wall papers in which a series of flowering trees or plants of bamboo succeeded one another on the wall, while small figures accompanied them and formed a foreground of great variety. The same idea may be carried out in tiles without undue extravagance. It is better, of course, that each separate pilaster, candelabrum, or anthemion have its own beginning at the top of the dado and its own termination at some distance below the uppermost line of the ornamented band, but this is not absolutely essential, and cheaper work may have the vertical stripes of ornament passing from top to bottom of the frieze and disappearing. Moreover, horizontal as well as vertical division of the sort may be made. For the sake of clearness of comprehension, let us suppose a plain, dark dado, and the surface to be adorned with tiles coming above this dado and extending over 8 ft. of vertical height. Such a surface as this can be adorned with horizontal bands, which may be exactly alike or may come in a wider and narrower, a richer and a plainer, a more brilliant and a more somber alternation. Or a single very rich band of scroll ornament, 2 ft. wide or more, may pass horizontally around the room in the upper part of this 8 ft. band, perhaps in its uppermost third, and this may be echoed by a much narrower band immediately above the dado. In either of these cases — in the horizontal as well as in the vertical treatment — the surface not occupied by the richer patterns may, indeed, be ornamented by small and not very noticeable spots, as of gold, or brown, or some neutral gray, or by groups of such spots; but it will generally be found that the irregularity of the background produced by the small tiles will sufficiently diversify the surface, which, after all, is a foil, or set-off for ornament.

FIG. 6.

The American Schoolhouse. XIV.

BY EDMUND M. WHEELWRIGHT.

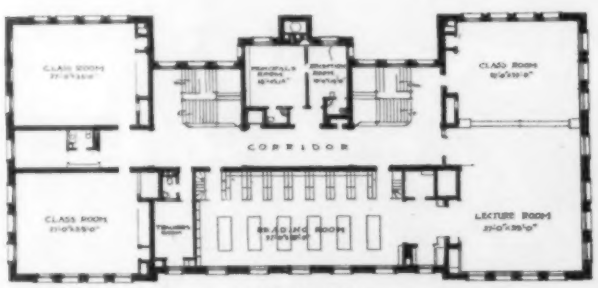
THE NORMAL SCHOOL.

THE normal school, being primarily for the training of teachers, has features analogous to that of a college, *i. e.* its principal function is to give recitation rooms, laboratories, drawing rooms, etc., for instruction in special subjects; but unlike a college, it is required that there should be a large assembly and study room in which the students prepare their recitations and where they join in general exercises; also, as in the English schools, small classes may recite in this large room without disturbance to others in their studies. In fine, the method of instruction in the normal schools is that which is given to the higher classes in schools of the type of the Roxbury Latin School, whose traditions are based on the English method of individual instruction.

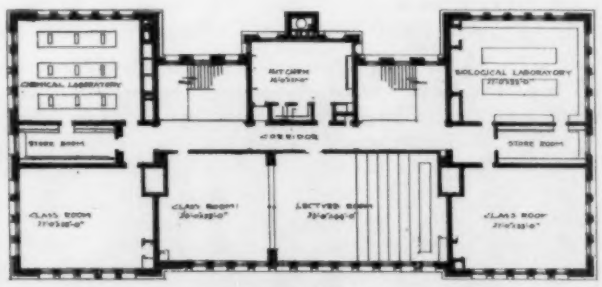
With the advanced age of the pupils and the advanced studies in our best high schools, there seems to be no good reason why the upper classes in these latter schools should not be placed under the systems adopted in the normal schools. If this were done, the plan of the high school would be materially affected and the cost of such constructions materially decreased from that involved by the graded class system, which is generally followed in our high schools.

Aside from its collegiate characteristics, the normal schoolhouse plan when fully developed gives class rooms for the kindergarten, primary, and grammar grades. The pupils in these "model departments," as these branches of normal schools are designated, are not a picked company of children, but are taken without selection from districts which are established by the local school committees. The teachers for these "model departments" are nominated by the principal of the normal school and are elected by the city school committee. The aim of these departments is to produce actual school conditions and to afford to the students in the upper class of the normal school an opportunity for practical application of the teacher's art. Other normal school students than those especially assigned to instruct these pupils are permitted to observe the work. These departments have become essential to a thoroughly equipped normal school, so that class rooms and other provisions for their accommodation are a requirement of the fully developed plan of this type of building. We therefore find in the typical normal school plan an "assembly study room" with single desks and chairs for say, two hundred and fifty students, class rooms for the kindergarten, primary, and grammar school, which are given an en-

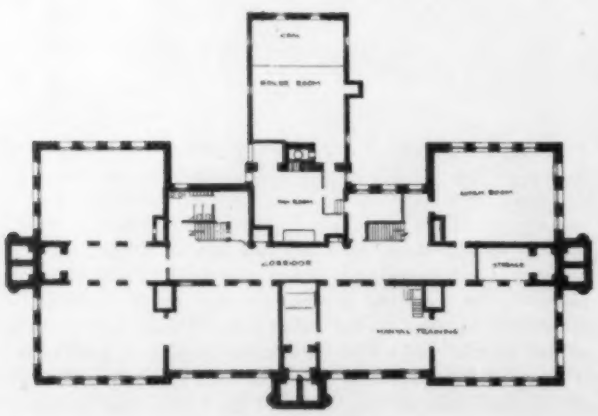
STATE NORMAL SCHOOL, NEW HAVEN, CONN.
Hartwell, Richardson & Driver, Architects.



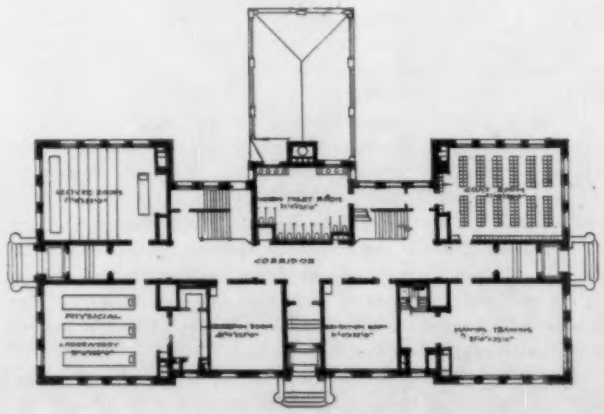
SECOND FLOOR.



THIRD FLOOR.



BASEMENT PLAN.



FIRST FLOOR.

STATE NORMAL SCHOOL, NEW HAVEN, CONN.

trance to the class rooms and a stairway to toilet accommodations in the basement distant from the portion of the building assigned to the normal students.

Special class rooms should be furnished for instruction in geography, mineralogy, zoology, history, literature, "pedagogy," and languages, as are physical, botanical, and chemical laboratories; rooms for instruction in drawing, music, and manual training are also required. A well-appointed gymnasium is also properly held to be an essential feature of such schools. The library is also important in such an institution.

A good example of the normal school building is that shown in the State Normal School at Salem, Mass. In the basement of this building are located the heating and ventilating apparatus, the toilet and play rooms for the pupils of the "model department" schools, a well-equipped gymnasium with dressing room, the industrial laboratory, a lunch room, and store rooms for supplies.

On the first floor are

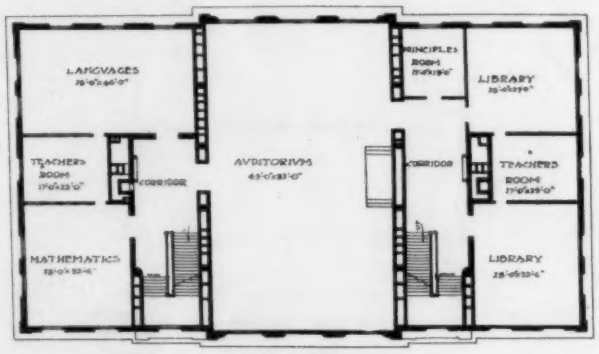
STATE NORMAL SCHOOL, NORTH ADAMS, MASS.
H. Neill Wilson, Architect.

three hundred pupils. These rooms have been planned so as to be entirely distant from the space assigned to the normal school proper, and the stairways to the basement are so planned that they may be used by the children without disturbance to the normal school students, while easy communication between the two departments is provided.

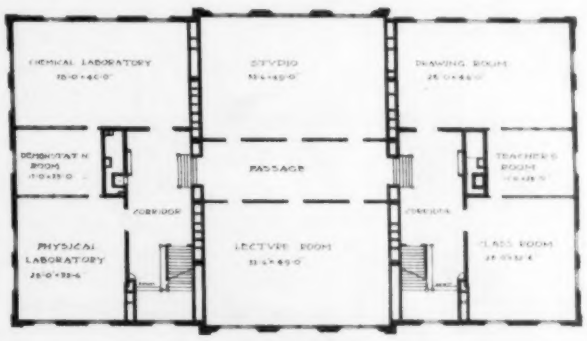
On the second floor is the assembly and study room, 60 by 85 ft. On this floor is the principal's office, reception room, teachers' meeting room, with toilet room, library, supply and recitation and work rooms.

The third floor is mainly devoted to instruction in science. Here are the rooms and laboratories for instruction in physics, chemistry, botany, geography, mineralogy, and zoology. Here also is a lecture room with seats arranged in tiers, and two rooms on the north side furnish accommodations for instruction in drawing.

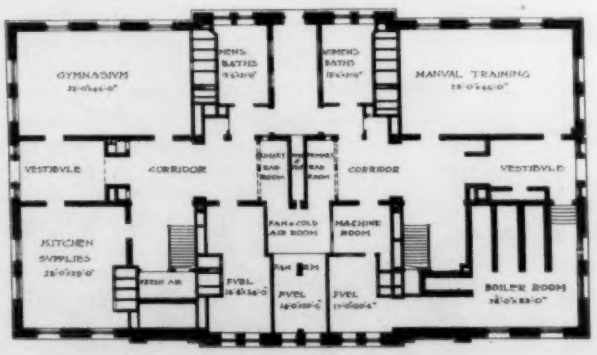
The smaller State Normal School at North Adams is designed to meet similar requirements, but the "model department" school is in a



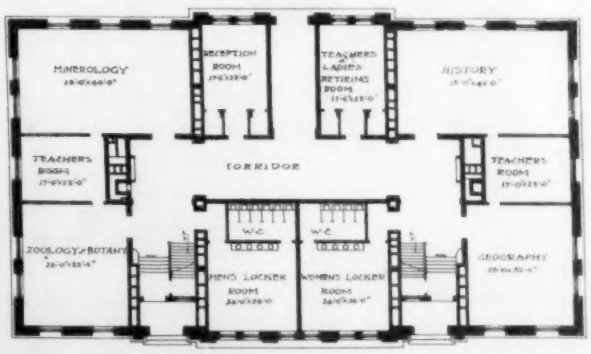
SECOND FLOOR.



THIRD FLOOR.



BASEMENT PLAN.



FIRST FLOOR.

STATE NORMAL SCHOOL, NORTH ADAMS, MASS.

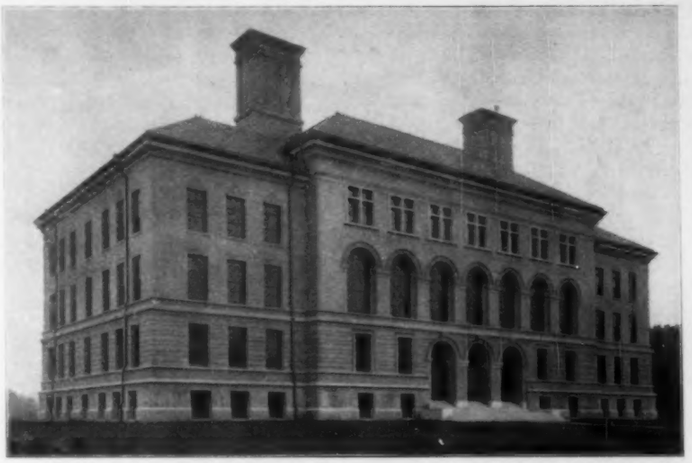
the toilet and cloak rooms provided with individual lockers for the students of the normal school, a system of clothing disposal which we have seen to have been gradually adopted in several high schools recently constructed. Two outside entrances give access to the portion of the building assigned to normal school scholars. In either wing is an entrance for the pupils of the "model" schools. The rooms for these schools are nine in number and accommodate over

separate building on the same lot of land. In this building is a gymnasium equipped for the Swedish method of instruction.

In the North Adams Normal School proper we find the cloak and toilet rooms on the first floor, as in the Salem school, but here, also, since "model" class rooms are provided for, as above noted, four natural science laboratories are placed on the first floor. On the second floor is an assembly hall, the office, libraries, and class

room for mathematics and languages. In the third story are the physical and chemical laboratories, the drawing rooms, and class rooms.

In the normal school at Lowell in the same State the cloak and toilet rooms are on the first floor, as in the other two schools; for the "model" departments a kindergarten class room only is provided, the other "model" being furnished in adjacent public schools. The assembly hall and study room are united as in the Salem school, and, as in that school, this room is placed on the second floor.



STATE NORMAL SCHOOL, LOWELL, MASS.
Stickney & Austin, Architects.

The State Normal School building at New Haven, Conn., as here shown, is but a portion of the structure contemplated for the future needs of the institution.

The main building is 155 ft. 4 ins. long, with an extreme depth of 70 ft. 4 ins.

It is expected that wings will later be built projecting from the rear of the present building, which will then occupy three sides of a hollow square, with the heating plant in the center.

This proposed extension accounts for a disposition of the staircases that would otherwise have been extravagant.

The clear height of the first story above the street is 12 ft.; that of the second, 13 ft., while the third is the same as the first, except that the lecture room and class room, which open together, are 16 ft. in the clear.

But little of the basement is occupied at the present time. One room is arranged for a lunch room. Two other rooms are thrown together, which are devoted to manual training, while the remainder is unoccupied, awaiting future development.

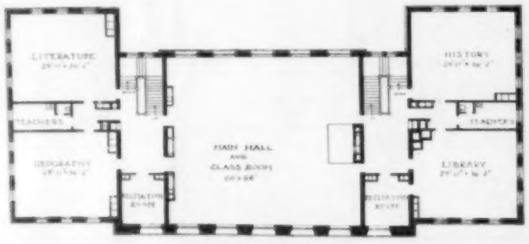
The clothing lockers, which are now placed in a room upon the first floor, will doubtless finally be placed in the basement as originally planned, and the space they now occupy will be used for class rooms.

There will then be upon the principal floor one class room, a manual training room of the same size, with an alcove for the convenience of the instructor, from which stairs descend to the rooms in the basement devoted also to manual training. In the floor a hinged trap door opens upon an inclined plane, by means of which stock and other articles are passed from the basement to the room above, where the finer work is expected to be done.

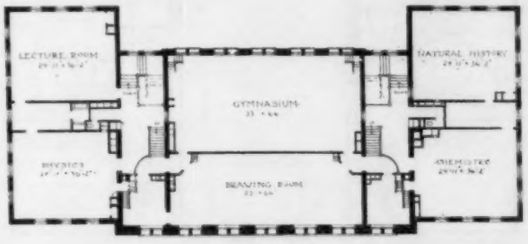
There are also two recitation rooms, a physical laboratory, with alcove, store room, and closets, a lecture room of same size, with alcove, and a women's toilet room. This toilet room has no direct connection with the rest of the building, and is entered by a passage underneath and behind one of the main staircases. The men teachers have their toilet room in the basement.

In the second story, the northerly end of the building is occupied wholly by one class and one recitation room, which open together by means of double rolling partitions.

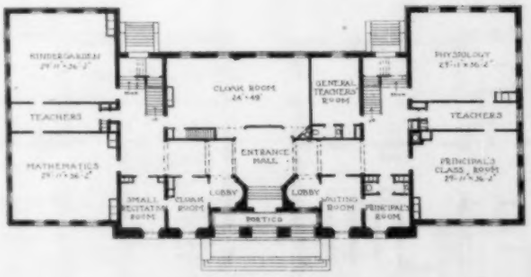
Corresponding to these in position at the opposite end of the building are two class rooms, while the library, or, as it is designated in this case, reading room, is centrally located along the front, with a length of about 55 ft. (or an extreme length, measuring into the alcove at the end, of 65 ft.), and a depth from front to rear of 25 ft.



SECOND FLOOR.



THIRD FLOOR.



FIRST FLOOR.

STATE NORMAL SCHOOL, LOWELL, MASS.

Book shelves in alcove form, two stories in height, cover the rear wall opposite to the light.

This library and reading room is connected with the lecture room just mentioned by double rolling partitions, having an opening 8 ft. in width.

The second story also contains the principal's office and reception room, a teachers' room, and a retiring or emergency room, each having its individual toilet accommodation.

In the third story are the chemical and biological laboratories, each with its large store room and two class rooms.

Another class room opens by sliding partitions into a still larger lecture room, the two having an extreme length of 73 ft., with a height of 16 ft., as previously stated.

In the center, at the rear, is a kitchen or cooking school, fitted with closets, sinks, dressers, and lockers, and with a lift running from the basement.

It will be noted that the requirements in the case of this school are different from those of the normal schools of Massachusetts.

Certain of the Massachusetts requirements are not demanded in this institution or are met by accommodations in the city schools.

The following quotation from the catalogue of the North Adams school, describing the administration and the facilities for practise in teaching, given in the training school, may be of interest to those unacquainted with the Massachusetts Normal School methods.

"Unusual opportunities are afforded for the study of children and the practise of teaching. Students begin their work in this school immediately upon their entrance into the normal school, and continue it regularly throughout the course. The rapidity of progress through the various stages of the training-school work depends on the ability and previous experience of the student. In general, the order of work is as follows: —

"*First Year.*— First term: reading of individual children begun. Second term: observation of teaching begun.

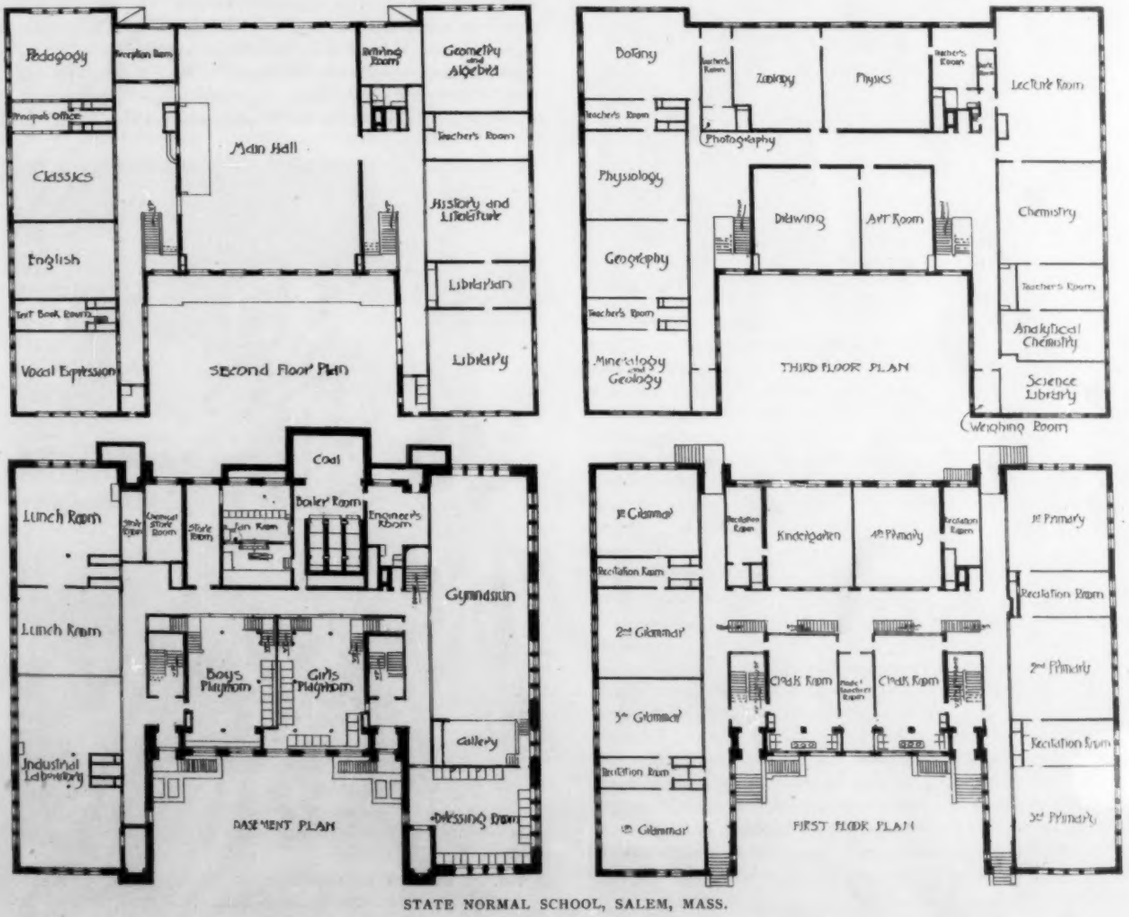
"*Second Year.*— Third term: study of school organization and management, and assisting in teaching and management. Fourth term: practise in teaching, the amount of responsibility conferred depending on the ability of the student.

"*Third Year.*— Responsible charge of classes, elective work. Students who have taught successfully before entering will be given opportunities for practise in teaching and disciplining as early in the course as their abilities warrant.

"Close and appropriate supervision and instruction are given students by the regular teachers of the several grades and by the principals of the various departments, thus insuring reasonable progress to students requiring extra opportunities in the practise work of teaching.

"In the kindergarten department, which occupies a suite of three rooms, which can be opened into one, students not only are trained to be kindergartners, but also are taught the importance of and the ways of continuing the kindergarten spirit into primary work. They observe and practise in the early primary grades, and are fitted thus to become kindergarten or primary teachers in the public schools as they may elect."

STATE NORMAL SCHOOL, SALEM, MASS.
J. P. Rinn, Architect.



STATE NORMAL SCHOOL, SALEM, MASS.

Church Architecture in Materials of Clay.

BY THOMAS CUSACK.

THE brick churches of moderate cost yet to be built in this land of the Pilgrim Fathers, to supersede or replace such as otherwise would be (or are) of wood, offer a wide field for the legitimate use of terra-cotta. In many of those already built it has been used

FIG. 1. CAMPANILE OF SAN GOTTARDO, MILAN.

extensively, giving enhanced reputation to rising architects who have anticipated the wants of the community immediately concerned, and contributing something towards the less specific demands of those interested in the abstract question of street architecture. In many churches of comparatively recent erection, however, the terra-cotta has been limited to gable coping, roof cresting, and, perhaps, a few grotesque finials. These meager items but serve as reminders of what *might* have been done on a more extended scale in the same building had the architect been endowed with artistic perception, united to a faculty for wise discrimination in the choice of materials. If, in addition to other acknowledged excellences, the weather-resisting qualities of terra-cotta have justified its use in the more exposed situations, why stultify these candid admissions by withholding it from the entrance, the apse, the spire, the buttress weatherings, and the window tracery? The same work that served medieval builders for these and other purposes remains to-day intact, while stone of the same age has long since yielded to the tooth of time. So, too, in our own experience, thoughtful men have turned it to good account in every part of the edifice, interior as well as exterior, not even excepting the font, chancel screen, and reredos. Such examples, creditable and encouraging as they undoubtedly are, render more conspicuous a wilderness of wasted opportunites, most of them chargeable to the force of conventionality, the inexperience, or the want of resource on the part of architects. The reminiscent architect to whom these strictures would apply must often feel the force of Whittier's couplet: —

"For of all sad words of tongue or pen,
The saddest are these: 'It might have been.'"

We are not, of course, referring invidiously to mission buildings, or to merely temporary outposts of the Christian religion, in which no architect of standing has had a share, or in which four walls and a roof may have exhausted the (usually limited) means at the building committee's disposal. The sins of omission and commission to which exception is taken are everywhere noticeable in city churches, built for prosperous — even fashionable — congregations. Door and window jambs without the semblance of a molding, buttresses without a pinnacle, pointed arches filled with pretentious "tracery" from a planing mill, amount to a travesty on Gothic architecture. As for stained glass, we hold it as much out of place in a frame of perishable wood as a diamond, or other precious stone, surrounded by a nickel-plated setting. Granted that the public taste has yet to be educated up to this standard, and that even church members need an occasional reminder of "the eternal fitness of things," it is to those who are professionally engaged in what has been truly described as the greatest of all the arts that they must needs look for enlightenment.

The relationship in which an architect stands to his client and the status accorded to him in the community are largely of his own making. Like other professional men, his opinions will command respect and his advice will be accepted with a degree of deference equal to the measure of success achieved in work already executed under his direction. The average American architect has been content to occupy a somewhat dubious position in this respect compared with that of his European contemporaries. Of late years, however, he has made good his claim to a much higher place in public estimation. This improved position has not always been gained by wordy self-assertion, or merely adventitious circumstances. In most cases, it has been the well-deserved reward of merit, displayed in the conception and execution of work bearing evidences of taste, utility, varying degrees of originality, free from fads and eccentricities. Assuredly, it has not resulted from catering to the whims

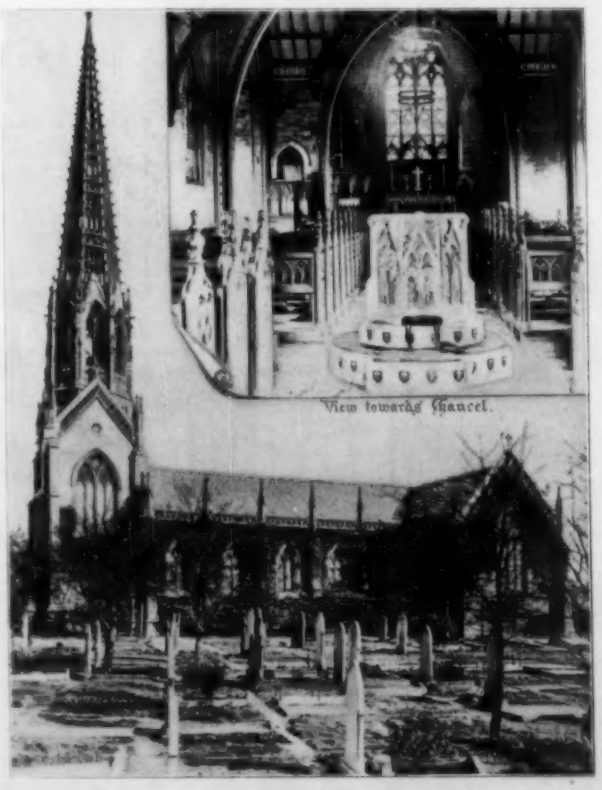


FIG. 2. CHURCH AT LEVER BRIDGE, LANCASHIRE, ENGLAND.
Edmund Sharpe, Architect.

of a client, be he an individual or a noun of multitude, or by following too literally notions that may be crude or commonplace, perhaps irreconcilable. The architect who can resist these influences, adhering to his own (presumably trained) judgment with firmness and in

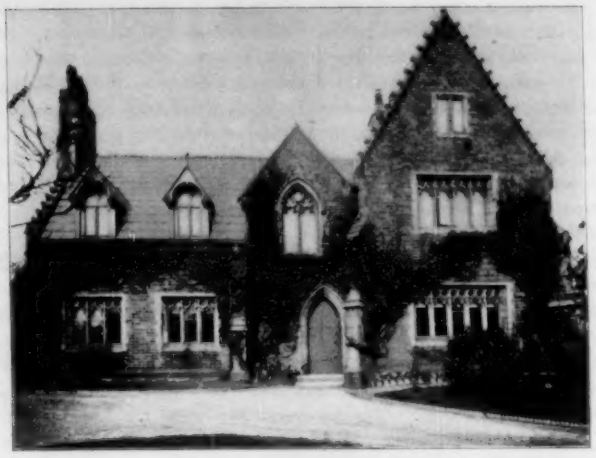


FIG. 3. RECTORY, LEVER BRIDGE.

moderation, has done much to prove his fitness as the interpreter of his client's actual wants, and as a safe guide in their ultimate attainment.

The responsibilities inseparable from such a position cannot be minimized or ignored; they are the price paid for an established reputation, and are not without compensating advantages. On every building for which an architect is responsible, he has written his name in letters that cannot be effaced, repudiated, or recalled, so long as the building exists. It is a challenge to public criticism, becomes part of his life's record, on which he must stand or fall. If it stands the test, that name will find favor in his own time and be known to future generations, for the good, even more than the evil things that architects do, are destined to live after them.

The architects of northern Italy, from the twelfth to the sixteenth century, accepted these conditions in their fullest significance. Their work has survived until our own time, and will continue a font of inspiration for ages to come. The excellence of their designs and the soundness of their construction were in accord with their choice of an enduring material. In this latter particular, the physical disadvantages by which they were beset did not cause dismay. On the contrary, they were faced in such a way as to make them a help instead of a hindrance. The scarcity of stone did not force them to temporize with wood for structural purposes, or deprive them of a means wherewith to make themselves known to posterity. Turning to the rich deposits of clay which had trickled down into the valley of the Po, they molded it into building blocks, using the inflammable wood to fire the kilns, in which to render them imperishable. It is by their skilful and extensive use of burned clay that the architects of Lombardy achieved lasting renown. We, more fortunate than they, have clay banks of much greater extent and variety; for its preparation, we have engine power and appliances of the latest approved pattern, where they had hand labor; we have chemists and mineralogists vying with each other in their desire to reveal the secrets of nature. With all these advantages, shall we not try to imitate — if we cannot improve — the examples in church building left by men who lived in the Middle Ages, before "the revival of learning"?

With a superabundance of material wherewith to illustrate the preceding paragraph, we must forego that privilege until a more opportune moment presents itself. From Santa Eufemia at Pavia to "Santuario di Crema" represents fully four centuries of incessant church building throughout Lombardy, in all of which terra-cotta and brick came to be used as a matter of course. Midway in this period arose the graceful campanile of San Gottardo, Milan, seen in the foreground of Fig. 1, surrounded by a setting of brick chimneys rising out of an unstudied ensemble of red roofing tile; on every hand a changing vista of variously designed but similarly constructed roofs, chimneys, and campaniles. In this view, while there is much to charm, there is nothing to offend, the eye of an artist. It embodies the essence of the prevailing material, and may be said to typify the style of architecture that came into existence in an age and country known to us, above all others, for its exemplary use of burned clay.

An eminent English architect and author, Mr. Edmund Sharpe, must have reasoned with himself from these premises, until he reached a satisfactory conclusion, which he did in 1842. Previous to that time the manufacture of terra-cotta in England had been confined to busts, medallions, and other isolated features of a purely decorative character. Beyond these no serious attempt had been made to convert it into a *bona-fide* building material. Notwithstanding this, Mr. Sharpe conceived the idea of building a church entirely of terra-cotta, the same to be made from fire-clay, obtained as a by-product in the coal measures of Lancashire. The immediate outcome of this initial effort is shown at Fig. 2, and the one that followed it, two years later, at Fig. 4, both of which we commend to the notice

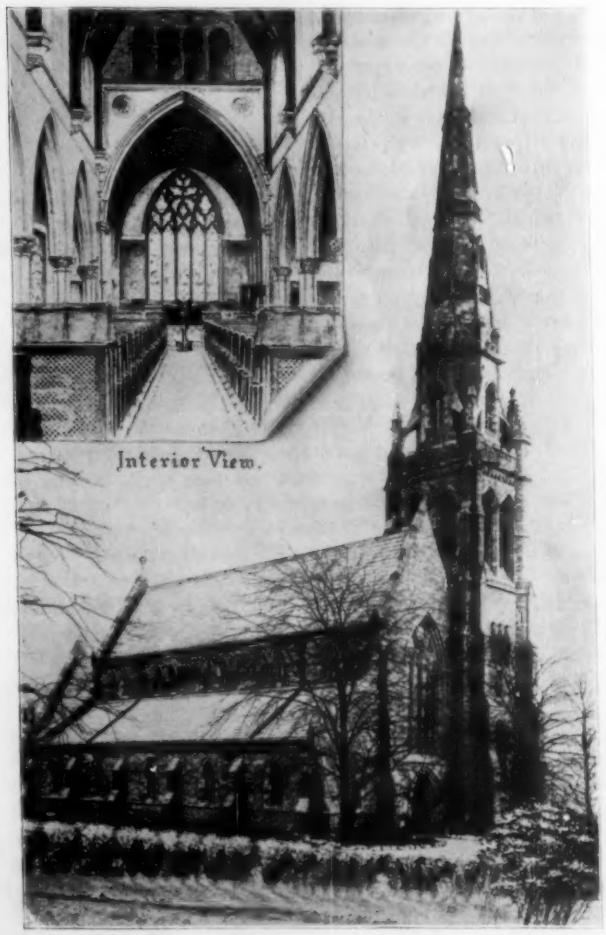


FIG. 4. PLATT CHURCH, MANCHESTER, ENGLAND.
Edmund Sharpe, Architect.

of our friends, whether architects or architectural clay workers. The author of "Sharpe's Parallels" and other standard works reunited the two functions and proved himself preeminent in both.

For the information of those who have not read our description

of three years ago,[1] it should be noted that the whole of the *interior*, as well as the exterior, of the first-named church is finished in terra-cotta. This applies to the seat ends and finials, the tracery panels in the seat backs, the font, pulpit, organ screen, and even the communion table, all of which are shining examples of finished workmanship. While not prepared to advise the use of terra-cotta in some of these items, it is hard to withhold our admiration for an architect who displayed such steadfast faith in its claims and capabilities.

To the church at Lever Bridge, a schoolhouse and rectory have now been added, in which, needless to say, the same unexceptionable material has been used, — used in such way as to produce a group that is truly picturesque. That richly crocketed, open-traceried spire is still intact, and through it, on the occasion of our visit, slants of sunlight were gleaming down into the vestibule, lighting up the somber habiliments of the female bell-ringer, at that moment calling the parishioners to Lenten service. This spire does not owe anything to an interior anatomy of steel; nor does it contain a metal dowel, cramp, or anchor of any description. If it has withstood the frosts and storms and weekly vibrations of the bell for more than fifty years, there need be no apprehension as to the general condition of the edifice. The fabric of the whole establishment remains, and is likely to remain, unimpaired for an indefinite period. While waiting for a train on the high ground at Darcy Lever, black smoke from the neighboring cotton mills and mounds of colliery slag were closing in a limited perspective, but the unique ensemble of this little terra-cotta village in the foreground was enough to redeem the bleakest of landscapes, rendering hospitable the otherwise dreary outlook towards Bolton-le-Moor.

The Platt Church is built upon lands forming part of an estate of that name, which, in the middle of the twelfth century, had been conveyed to those truly militant champions of Christianity, the Knights of St. John of Jerusalem. It is now a residential suburb on which the city of Manchester is making rapid encroachments: bounded, as yet, on one side by an expanse of meadow land which renders the scene more pastoral if less picturesque than the one just described. Our visit, interesting as it would have been, was made additionally gratifying by the friendly greeting received from the rector, the Rev. W. H. Finney, to whom we are likewise indebted for some useful information.

The metal gutters behind the diapered parapet appear to have become leaky of late years, giving cause for portions of the roof timbers to be renewed. The delicate undercut ornament inserted in the hollow of the molded door jambs has, in some instances, broken off, and the finial on gable of chancel had been displaced during a recent wind storm. With these trivial exceptions, no block of terra-cotta in the building shows the slightest symptom of decay. Indeed, to quote the words of Mr. Finney: "It is not possible, apparently, to find a single one that has been affected by time or weather." In 1896, this church having been built fifty years, pastor and people were looking forward to the celebration of its jubilee. Barring shocks of earthquake, lightning, or the less likely danger from invading artillery, coming generations will celebrate, perhaps, more than one centenary of its existence without finding any need for restoration of the fabric.

These two churches were not only the first of their kind that had been built in modern times; they were the forerunners of all that has followed in structural terra-cotta in England — therefore, in America. In many respects the work will stand comparison with the best of our recent efforts this side the Atlantic; while in some it is, perhaps, ahead of anything that has been accomplished during the intervening half century. Considering the boldness of the venture, the responsibilities of the task, the untold difficulties incident to its execution, this terra-cotta lastingly associated with the name of Edmund Sharpe might well claim to be the Mecca of modern clay-workers. It was a precursor, and is, therefore, a fitting preface to what may be said subsequently on behalf of burned clay in church architecture.

[1] A descriptive commentary on these two churches appeared in THE BRICKBUILDER, February, 1896, and was continued in the June number of that year, on which occasion adequate illustrations were promised at some later date. Since that time, the writer has revisited these two remarkable specimens of terra-cotta architecture, and, not unmindful of the foregoing promise, obtained the negatives from which these plates have been made.

Fire-proofing.

THE TEACHINGS OF THE NEW YORK FIRE.

IF one of the provinces of the architect is to assist in the education of the general public, the recent fire of December 4, in New York, by which the Home Life Insurance Building was partially gutted, has demonstrated that the efforts of the profession have not been in vain. Whenever a fire has occurred in a building which has any more than ordinary solid construction, the daily press has been wont to make remarks about fire-proof construction and to assume that any building not manifestly dilapidated must have been intended to be fire-proof. In the newspaper comments on the New York fire, however, the amount of tangible appreciation of structural conditions manifested by the reporters has been somewhat remarkable, as showing how well the lessons of fire-proof construction have been assimilated by the press. Of course there has been a certain amount of slopping over, and the scare headlines which came out at first would seem to infer a belief that the Home Building was a total failure, but on the whole, the comments of the press on the fire and its result have been very intelligent and have shown a reasonable fairness in judgment of conditions. Several of the papers also have shown a commendable desire to submit judgment upon questions of this sort to experts. Mr. W. W. Kent, the well-known New York architect, made, to the New York *Herald*, a very complete report of the condition of the Home Building, which undoubtedly had a great deal of weight in moderating the yellow journals, which are only too prone to jump on a suspicion of failure. In its issue of December 6, the New York *Tribune* published an editorial apropos of the fire, which is of interest to quote.

"Sneers over the burning qualities of fire-proof buildings will doubtless be much in evidence because of the fire at Broadway and Warren Street on Sunday night. The result of that conflagration, properly interpreted, however, stands much to the credit of modern 'fire-proof construction.' The fact that the Home Life Insurance Company's building was not utterly ruined, but that only a few floors were gutted, is, under the circumstances, strong testimony to the endurance of such structures and their great value as barriers to the progress of a fire. The existence of some defects in the design of the building, which apparently prepared the way for such damage as was done in it, only serves to emphasize the effectiveness of terra-cotta covered steel in resisting flames when it is properly disposed and an edifice is not planned with an open door for the entrance of a passing fire."

The *World* was not quite as successful in its statements: —

"The 'fire-proof sky-scraper' in New York was tested by fire last night. It did not stand the test. The lofty Home Life Insurance Company's building on Broadway, opposite City Hall, 280 ft. high, absolutely 'fire-proof,' caught fire from a burning building next door to the north. The flames were not confined to that floor of the Home Life's building in which they first ignited. Devouring everything combustible, they ate their way to the roof, floor by floor. Their progress was very slow, of course, but finally only the stone and iron and terra-cotta remained in the floors through which the fire had soared. The fire burned itself out, for the firemen, fighting insuperable difficulties, could not put it out."

Our readers who studied the presentation of the condition of the Home Life Building, as set forth in our last issue, will appreciate that the *World's* statement in regard to the flames not being confined to one floor of the Life Building is hardly a fair one, for though some six floors were gutted, the evidence of the newspaper reports is on the whole quite clear that the fire was communicated to each story individually from without. One of the best descriptions of the manner in which the fire was communicated from one building to another was published as follows in the New York *Sun*: —

"The clothing store was all in a blaze in a quarter of an hour. Then it burned as a whole until the floors fell, one after another. At

11 o'clock there was nothing left to burn. Meantime, the big insurance building, against which this white-hot mass of fuel had been sending up steady sheets of flame for a full hour, had just begun to catch fire, this notwithstanding the fact that the windows had no iron shutters on them."

We believe that the disasters of this fire, which are really very considerable, though confined so closely to mere externals or non-essentials of construction, will prove of vast benefit to the profession and the public in that they will do a great deal towards the educational development of our architects, our builders, and our real-estate owners. This fire has demonstrated that a building properly devised and properly constructed has great resisting powers against heat. It has also demonstrated that a structure of this sort is a very effectual fire stop. The possible consequences of a fire of this sort are simply appalling. Mr. Brady, of the New York Building Department, was asked by one of the reporters if, in the light of what has happened to the Home Life Building, there was such a thing as a fire-proof building.

"Yes," he replied. "I think that is a fire-proof building. Look at it. The walls, the floors, the tower, are all standing intact. Very little of it has been burned. The fire was practically confined to the contents of the offices; and let me tell you that if it had not been a fire-proof building, the firemen would be blowing up buildings to-day away down below the Astor House, in an effort to stop the progress of a conflagration. With the gale that was raging last night, the firemen would have been utterly powerless against such a conflagration, had there not been such a bulwark as this building interposed between the flames and the blocks beyond it. When we speak of a fire-proof building, we use the word in a comparative sense. Certain heats will burn anything, but this building showed itself able to stand up against as fierce a fire as we are likely to have. Whether or not buildings should be as high as this I don't care to say. That is a question with which I am not dealing at present."

VESTIBULE CEILING (GUASTAVINO SYSTEM), CITY HALL, BINGHAMTON, N. Y.
Ingle & Almirall, Architects.

Surely, this is pretty good testimony to the value of this particular construction. But we will not learn a great deal by limiting ourselves to congratulations that the building stood so well, but rather by considering if it were possible for it to have stood a great deal better, and this is manifestly the case. The omission of all external shutters on the side towards the fire was bad enough. As a matter of fact, it is very difficult to put shutters on an office building and keep them closed. Real-estate owners have found it again and again the rule that the tenants object to having their shutters closed. There is no way of closing them simultaneously without giving trouble to the occupants of the rooms, and there is hardly a building in existence with windows situated as those on the inner side of the Home Life which are not equally unprotected. Shutters sound all right, and the press is united in saying that had they been in place the Home Building would not have suffered; but they are impracticable from a business point of view, and we imagine that most owners of buildings would much prefer to take their chances of an external fire destroying their building entirely than to be put to the continual annoyance of trying to close these shutters. But even with the openings unprotected by shutters, there are methods of vastly diminishing the risks of fire from without. Wire glass has repeatedly been alluded to for protection in cases of this sort. The wire glass now in the market is not suitable for use in windows, but we understand that the glass companies are preparing to issue a product which is essentially a plate glass with wire embedded therein. This wire is so fine that it does not materially obstruct the vision, and tests have shown that the glass will melt before it will allow the flames to go through, and a heat which will melt glass, though by no means uncommon in a conflagration, occurs only in spots and lasts for only a very short time.

But even aside from the lack of shutters, the lack of wire glass, and admitting for an extreme argument that wooden window frames and sashes might be tolerated in a modern fire-proof building, there was a grave defect in the interior arrangement of the offices in the Home Life Building, a defect for which nobody but the renting public is to blame, namely, the cutting to pieces of the partition walls by rows of light sashes in the upper portion nearest the ceiling. Mr. Kent, in his report to the *Herald*, says that, "Perhaps the most striking fact in connection with the entire disaster is the thorough manner in which the hall and room partitions were overthrown by the heat. I say heat advisedly, inasmuch as it was impossible to throw any water into the upper part of the building. On almost every floor in which the fire had gained much headway the destruction of these partitions was seen at a glance to be due very largely to the fact that the fire-proofing only continued up about 5 ft. from the floor to the bottom of the interior sash, which gave borrowed light to the hallways, corridors, and passages."

There is not the slightest reason why these interior windows should ever be tolerated in a building which claims to be fire-proof. An external conflagration might destroy the window frames, the finish around the windows, and the furniture of an individual room, but it has repeatedly happened in offices which were enclosed by tight walls that the entire contents has been consumed without the fire spreading beyond that particular office. Indeed, there are a few cases on record where the presence of the fire was not even suspected until the following morning. Consequently the windows in the interior partitions of the Home Life Building were undoubtedly responsible for a very large proportion of the damage. Then, again, the construction of the partitions themselves leaves a great deal to be desired, aside from the cutting off by the rows of windows. These partitions were built of hollow blocks, the openings for the doors being spanned overhead by a wooden trimmer.

Quoting again from Mr. Kent: "I do not recall a single instance in recent great fires in large so-called fire-proof buildings where the ordinary terra-cotta block partition has not met with disaster, and as this special form of partition has so many admirable qualities, both in strength and in fire resistance and as a sound deadener, it would seem as if in some way it could be made much better on the point of stability under conditions like these."

This is a severe indictment of the terra-cotta block partition work; but the indictment is limited to the manner in which the material is used rather than the material itself. We cannot have a

fire-proof partition unless it is able to stand fire and water. This seems axiomatic, but the axioms of construction are the ones which are most often ignored.

Then, again, the results of this fire seem to show that wire lathing and plastering are not the most advisable protection possible for structural steel work. In fact, we would draw a deduction even further than this and say that in a modern building, to be thoroughly fire-proof, there ought to be no lath and plaster whatever, except possibly for decorative purposes, and that in the offices themselves the ceiling ought to be of terra-cotta, so arranged that it will form its own finish. We appreciate the argument that the terra-cotta floor blocks as now used are of themselves fire-proof, and that the plastering applied to them is an additional safeguard; but on the other hand, the fact that the soffits of the arches are to be plastered makes it possible for a careless builder to do his work in a very rough manner without being found out, and we see no reason why we should not be able to produce a good ceiling without the use of metal lathing and plastering to cover up the carelessness of the workmen.

There are points about the floor construction of the Home Life which might be improved upon. The air space left under the wooden floor boards is a menace, and ought not to be. But the amount of actual damage to the floor construction in the Home Building was surprisingly slight. It will be noted that a safe weighing two tons fell through the tenth floor into the office of the Rapid Transit Commission on the ninth floor, and there stopped. This apparently shows two things: one that the particular floor arch over which the safe stood on the tenth floor was of faulty construction, and the other that the remaining arches were unusually well built.

The damage to the exterior of the building by the fire is what might have been expected. Perhaps it is too much to hope the time will come when our architects will feel that only a few building materials are suitable for the exterior of a structure in a crowded business district of the city. We believe Boston is the only city which recognizes officially the non-fire-proof character of granite, its building laws requiring all granite supporting work below certain levels to be protected by brick or terra-cotta. But, though the temptation to use elaborate stonework is one which is very strong to an architect who takes a pride in producing a certain effect, it is more logical to admit in the beginning that no building stones can be depended upon to resist a fire, and that if we are to be consistent with the surroundings, with the conditions which are very apt to prevail at times in a commercial structure located on a crowded street, the choice of material for the exterior must be limited to burnt clay in some of its various modifications. Quoting again from Mr. Kent's report to the *Herald*: —

"The total ruin of half of the front repeats the old and expensive lesson of how utterly useless in a great fire any building material is except such as has already been through a great fire before, namely, terra-cotta or brick. The white marble stood as well as any stone could be expected to stand, but I believe had brick or terra-cotta been in its place, it would still be there in a much less mutilated form. At the great fire of the Bedford Street stores, in Boston, built by H. H. Richardson, of brown sandstone, the effect of fire and water on this stone was at the time noted as very disastrous, and I believe that in all cases where most of our well-known building stones have been subjected to great heat they have failed to stand the test like brick."

We need hardly more than repeat what has often been stated in these columns, that brick and terra-cotta are preeminently the building materials of the nineteenth century, and are especially suited to the wants of our modern commercial structures, to an extent unequaled by any other product available to the architect or builder.

In fact, the lessons of the fire are such as we imagine any intelligent architect could have written out in advance. The failures have taken place precisely where they could have been expected to occur, and without an exception the damage done to this building is the result of concessions to popular demand, either in the line of arrangement or of external decoration.

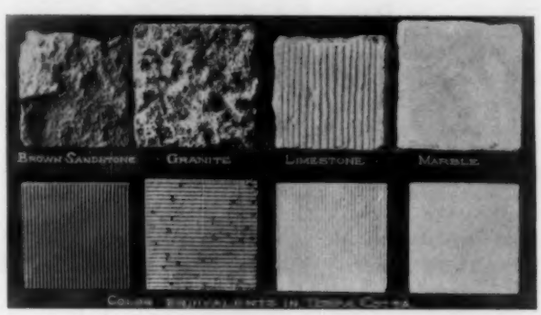
LESSONS FROM THE HOME LIFE BUILDING FIRE.

BY THOMAS CUSACK.

WHILE the reports and comments of the technical press have been all but unanimous in pointing out the contributory causes of this disaster, there is a corresponding agreement upon the things necessary to minimize the effect of fires that must occur, notwithstanding all that can be done to render them less frequent. The echoes that continue to reverberate through the offices of our leading architects show the widespread interest excited by this instructive, if expensive, object lesson. Those who have not been taught by reason may glean something from experience, while the residue will, at least, be amenable to the dictates of stern necessity.

The present writer has been favored by many freely expressed opinions confirmatory of the conclusions reached in his own summary, contained in last issue of THE BRICKBUILDER. Some of these have been delivered verbally, and some received in writing, from architects who are identified with the higher types of modern construction in New York, Chicago, Philadelphia, etc. The verdict of this highly competent jury may be summarized in the tersely stated findings of two of its most eminent members, F. H. Kimball, New York, and Louis H. Sullivan, Chicago.

The former architect admits that marble and limestone are converted into lime in the presence of fire; that granite will disintegrate, and that sandstone will flake beyond redemption when exposed to fire and water. When an owner expresses a decided preference for stone, his architect is expected to acquiesce; but he considers that



BEFORE TEST.

terra-cotta has many claims to favorable consideration, the more notable of which are its undoubted weather and fire-resisting qualities.

He suggests a double casing of fire-proofing with a 2 in. air space between, around all first-story columns in buildings where inflammable merchandise must be held in stock. He would have all fire-proof arches floated off in cement flush with top of the strips to which the flooring is nailed. This has been done in his latest erections, in one of which he displays unqualified confidence by having his own offices situated on the twenty-first floor.

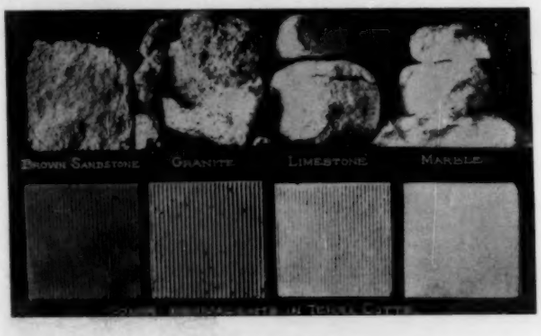
He denies the validity of Chief Bonner's plea based on an alleged inability to raise water beyond the 150 ft. limit. If this cannot be done at present, or with the means at his disposal, then a new and better system must be invented that will enable him to do so. But the remedy lies in leveling up to present requirements, not in leveling down to a standard that has been found altogether inadequate. While the height of modern buildings has been increasing, the fire department has remained nearly stationary, and, without improved appliances, would soon become obsolete.

Mr. Sullivan writes: "I indorse every word that you have to say. As you are perhaps aware, I have, for a number of years, been an advocate of the use of terra-cotta for covering the steel work of the modern tall building. I have erected such a building in New York City, on Bleecker Street, 150 ft. east of Broadway. In that

building I took additional precaution to provide for coiling steel shutters in all the openings on the street fronts, although these shutters have not yet been put in place. The Guaranty Building in Buffalo (now the Prudential Building), the Chicago Stock Exchange Building, and the Schiller Theater Building, both in Chicago, are all of them terra-cotta buildings erected from my designs. I trust that the effect of your article may be to bring about a further increase in the use of terra-cotta for building purposes, as I consider it a superior material, with almost inexhaustible artistic possibilities, and the manufacture of which, excellent though it may be, is still in its infancy."

These two statements fittingly represent the concurrence of Eastern and Western ideas in which advanced practise, up to date of writing, is epitomized. The writer of an otherwise reliable report contained in the *Scientific American*, December 17, allowed himself to say that, "The northern brick wall has been badly disintegrated by fire, and will also need repairs, if not replacing." We have re-examined this wall in the light of that divergent note, which bears evidence of having been made inadvertently, and find no warrant for any such statement. Beyond the smoke, which will wash off, the only injury which this wall has sustained is confined to the stone window lintels. They are all more or less blown and splintered, and will certainly have to be replaced; but the comparatively uninjured condition of the brick wall is a thing that seems to impress the most casual observer.

The accompanying photograph shows the immediate result of a recent test made by the writer, on 3 in. cubes of sandstone, granite,



RESULT OF TEST.

limestone, and marble, with an equal number of terra-cotta tablets representing approximately the same color equivalents. The former were exposed to a jet of flame produced by crude oil and compressed air for about ten minutes, when they were withdrawn and allowed to cool gradually, no water having been applied. The latter were heated under the same conditions for a period of fifteen minutes and until they had reached a nearly white heat, when they were raked out and dropped directly into a pail of cold water. Had they been allowed to cool in the same way as the pieces of stone, the heat would not have made any perceptible impression on them.

The moisture absorbed from the air was sufficient to "slack" the calcined limestone and marble, both of which fell to powder. The feldspar contained in the granite, accelerated by the alkalies present, began to fuse at a rose-red heat, liberating the particles of quartz, which, when cool, fell asunder. The piece of brownstone resisted the fire better than any of the others, but it, too, cracked into a mosaic and became worthless as a building stone. The corresponding piece of terra-cotta cracked slightly on the face, but adhering together with great tenacity, would still stand a test equal, perhaps, to half its original crushing weight of 5,000 lbs. to the square inch. The tablet next to it was merely crazed on the face, while the other two underwent very little change, notwithstanding the sudden reaction from white heat to water a little above freezing point. We present this demonstration to all whom it may concern without comment beyond a bare recital of the facts.

Masons' Department.

SOME MISTAKES OF CONTRACTORS AS VIEWED BY AN ARCHITECT.

BY F. E. KIDDER.

(Continued.)

CONTRACTORS often make mistakes in assuming responsibilities without proper compensation and in taking unnecessary risks.

Not a few contractors will estimate on a hazardous piece of work on the basis that everything will proceed favorably, and if any mishap occurs they have no provision for meeting the expense invariably occasioned. The contracting business necessarily involves the taking of some chances, as in the rise of the price of materials or labor, but when unusual chances are to be taken, as in remodeling, underpinning, or supporting old buildings, or in the case of uncertain foundations, the contractor should protect himself by estimating so that in case unexpected, although possible, difficulties are encountered he will not lose more than his profit. It is much better to let some one else have the job than to take it at a figure which will allow a profit only under the most favorable conditions.

Then many contractors are careless about allowing their work to be damaged by other workmen or through orders of the owner or architect. For instance, a mason contractor has built a cellar or basement wall, and the excavator wishes to fill against it on the outside before there is sufficient weight on the wall to insure its stability, or perhaps he may be directed so to do by the architect or owner. If the excavating is under the control of the mason, he can forbid the filling until such time as it may be done with safety, but if he has no control over it, he should protect himself by notifying the owner in writing, that if the filling is done it must be at his, the owner's, risk, otherwise if the wall springs or falls the mason contractor will be expected to make it good.

Similar risks or chances of injury frequently arise in connection with other portions of the building, especially when the work is done under several contracts, and the wise contractor will protect himself as far as possible from damages that may happen to his work through the ignorance or carelessness of others. If a contractor executes a given piece of work in conformity with the plans and specifications, and it is injured through the fault of persons working under another contract with the owner, it is evident that the first contractor should not be made to suffer from the damage; but it is the experience of all who have had charge of building operations that, unless some unusual precautions are taken, it is difficult for the contractor to collect damages for repairing his work, and he must leave it in good condition before it will be accepted.

Contractors also occasionally run a risk in attempting to execute work that is not properly designed or has not sufficient strength. For example, a stone lintel may be shown on the drawings with a span so great that it is doubtful if the stone will support its own weight and that of the load upon it. Now, if the contractor goes ahead and puts in the lintel without comment, and it breaks, the chances are ten to one that the architect or owner will insist on his putting in another stone or remedying the defect in some way, at his, the contractor's, expense. The same thing might happen in the case of an arch without sufficient abutment, or of a flat arch with no support under it. It is therefore the business of the contractor to carefully consider all of the constructive features of the building before he commences work on them, and if he believes that any part of the work cannot be safely executed, as shown by the plans, he should call the attention of the architect to it and try and have it changed, or extra provision made to give the necessary strength, so that there will be no risk of failure. In case the architect declines to make any

change, the contractor should serve a written notice on the owner that he will not be responsible if the work fails, and at the same time he should take care to see that the work is executed in the best manner, and in strict conformity with the plans and specifications, so that in case it does fail there will be no opportunity to show defective work as a cause. Generally it will pay the contractor to go to some extra expense himself to insure the safety of the work rather than to run any risk of a dispute or possible lawsuit.

The writer has known of a number of instances where contractors have suffered considerable loss from carelessness or negligence in this respect.

Occasionally a contractor permits himself to be imposed upon by the architect in the way of details. Not a few architects have the fault of showing much more work on their details than is implied by the scale drawings, and of expecting the contractor to carry out whatever they may choose to draw. Of course, if the details are made before the contract is awarded, and the contractors have an opportunity to examine them, it makes no especial difference if the drawings do not exactly correspond, as the details would determine the character of the work to be done, and the tender would, or should, be based on them. When the details are made after the contract is signed, however, the contractor is not obliged to adhere to them if they show more expensive work than is reasonably implied by the scale drawings and specifications. Thus, for illustration, where carving or dentils are put on the detail drawings, but are neither shown in the original scale drawings nor mentioned in the specifications, the contractor may claim an extra price for the extra work, or refuse to execute it. A claim for extra remuneration, however, would probably not be allowed unless made in writing before commencing the work, and acknowledged by the architect. It is therefore best, in such cases, for the contractor to politely call the attention of the architect to the discrepancy, and show him that the work cannot be done for the price at which the original work was figured. If he is then unwilling to either allow an extra price for the work, or to change the details, the contractor must choose between omitting the extra work or putting it in at his own expense. If to carry out the details means a loss on the contract, it will probably be best to refuse to do more than the contract drawings call for, but if only a small amount is involved, it may pay the contractor to retain the good-will of the architect by doing the work. Very often such extra work is put on the detail drawings by draughtsmen, without the knowledge of the architect, and when his attention is respectfully called to it, he will have the details revised.

In conclusion, the writer suggests that while the main object of a contractor is to make a profit from his business, or, in other words, to make a success of it, such success depends upon the exercise of a considerable degree of intelligence and tact, and that a successful contractor must have in mind the interest of the owner and architect as well as of his own; also that a successful business does not necessarily imply that a profit must be made from every piece of work. Not a few successful contractors owe their success in a considerable degree to the fact that they have carried out their unprofitable contracts with the same thoroughness with which they have executed their profitable ones.

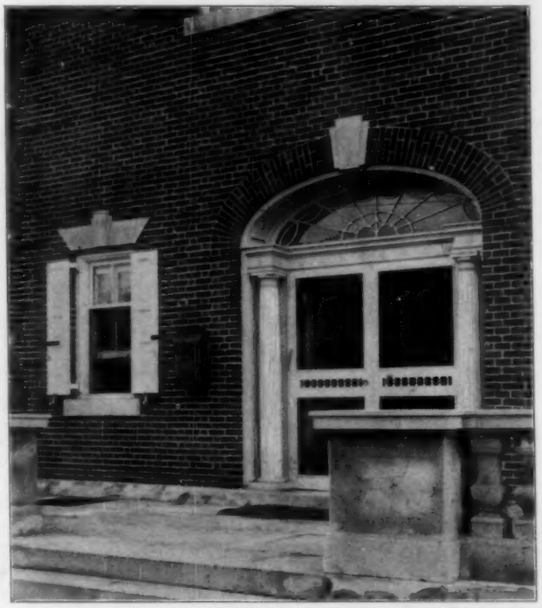
HARDENING CEMENT PAVING.

PORTLAND cement paving will attain a considerable degree of hardness without any dressing or any special treatment; but paving laid in damp weather will ultimately attain a greater degree of hardness than that laid in very hot weather. Further hardening of the surface may be produced by keeping the work moist by means of wet cloths, or by damped sawdust or sand laid over the paving as soon as it has set; flooding the work with water, where possible, will be best of all. Miller mentions that cement work may be rendered tough and hard by gauging the material with 10 to 15 per cent. of minion — the siftings of iron stone after calcination. Indurating concrete slabs causes them to become very hard; by it their density is increased and porosity lessened. —*British Brickbuilder.*

Brick and Terra-Cotta Work in American and Foreign Cities, and Manufacturers' Department.

NEW YORK. — A few shrewd investors, who have "nerve" enough to take risks, have taken advantage of the prevailing dulness and consequent close competition in bidding, and have erected buildings much cheaper than they could have at any other less favorable time, and the chances are that they will not lose by it.

It is really astonishing to contemplate the long list of new apartment buildings for which plans are filed every week. The upper part of the city is now a complete network of apartments, most of them very complete with elevators, steam heat, etc., and for these there is great demand. One reason for their popularity is that, when built in the best manner with fire-proof construction, the yearly bills for repairs and deterioration become extremely small. As is well known, these bills are large in all other flat and tenement property, and in much of it they are simply appalling after the first few years, whereas in the modern fire-proof apartment they are almost nothing. Tenants



DOORWAY, MANHEIM CRICKET CLUB, GERMANTOWN, PA.
McKim, Mead & White, Architects.

here are of the kind that stay, and a flat with a tenant who stays, as is well known, requires about half as much decorating and repairing as one with tenants who move in and out frequently.

Although very seldom of any interest architecturally, the amount of money expended on these buildings commands the attention of all who are interested in brick and terra-cotta materials, of which such buildings are largely constructed. Below we give a list of some of the more important apartment buildings for which plans were filed during the past month. St. Nicholas Avenue, corner 114th Street, a seven-story brick store and apartment; cost, $250,000; Neville & Bagge, architects. 100th Street, near Lexington Avenue, sixteen five-story brick and stone flats; cost, $300,000; Thomas Graham, architect. West Central Park, near 98th Street, two seventy-story brick apartment buildings; cost, $140,000; G. F. Pelham, architect. 120th Street and Seventh Avenue, two six-story brick apartment buildings; cost, $150,000; G. F. Pelham, architect. Third Avenue, near 171st Street, four four-story brick flats; cost, $88,000; Rudolph

MANHEIM CRICKET CLUB, GERMANTOWN, PA.
McKim, Mead & White, Architects.

Werner, architect. 122d Street, corner Hamilton Terrace, three five-story brick and stone store and apartment buildings; cost, $150,000; Neville & Bagge, architects. 80th Street, near West End Avenue, six-story stone and brick apartment; cost, $95,000; Janes & Leo, architects. East 54th Street, four five-story brick and stone flats; cost, $120,000; Schneider & Herter, architects. 114th Street, near Amsterdam Avenue, a six-story brick and stone apartment; cost, $75,000; Neville & Bagge, architects. 100th Street, near Amsterdam Avenue, a five-story brick and stone apartment; cost, $100,000; Henry Anderson, architect; and many others which limited space prevents us from mentioning.

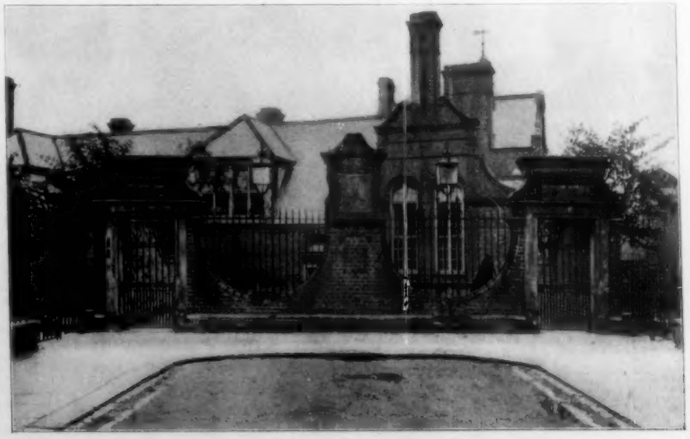
TERRA-COTTA ORNAMENT, STORE BUILDING, WASHINGTON, D. C.
Executed by the Conkling-Armstrong Terra-Cotta Company.
Wm. J. Marsh, Architect.

Among the items of news are: A new church for the Christian Scientists is to be erected on the corner of 68th Street and West Central Park. It will be built of marble, granite, and brick, and cost $250,000. Andrew Carnegie will build a costly residence on Fifth Avenue, between 90th and 91st Streets. It is said that he will spend $900,000, but the architect's name is not known. C. R. Sefert has planned a twelve-story brick, stone, and iron business building to be built on Broadway, corner of Waverly Place; cost, $175,000. Charles C. Haight has prepared plans for a brick gymnasium and dormitory building for the General Theological Seminary, to be built on Tenth Avenue, corner 21st Street, at a cost of $100,000. Henry Fouchaux has planned an eight-story business building, to be built on East 19th Street; cost, $100,000.

CHICAGO.—In Chicago, for the first time since 1893, a new year has dawned with a real hope for a turn in the tide of affairs, which for more than four years has been bearing out into the depths of discouragement, architect, builder, and landowner together. Founded upon reports of an unparalleled revival of trade and industry, overtopping in December even the brightest record for the great year of 1892, these hopes put fresh heart into every individual whose prosperity is dependent upon activity in real-estate investments. Chicago, with over five hundred licensed architects, overbuilt at the close of the World's Fair, has never before passed through such a long period of building trade depression. In the fat years that we trust are upon us may the architect, like the gold-seeker who has made a "strike," have the prudence to put away a large factor of financial safety against the days when many sketches are made for sky-scrapers whose foundations remain forever in the air.

As to current work of general interest, there is little of note going up at present. The only large building in the business center is the new Ayer Building, replacing the fire-trap on Wabash Avenue, which destroyed many lives last summer. The architects, Messrs. Holabird & Roche, have adopted for their steel structure a large plan-unit and a simple, straightforward scheme of covering, in glazed cream-white terra-cotta, which, with its fine, unobtrusive, Renaissance detail, promises to be very clean, quiet, and agreeable. The Reliance Building, the first in Chicago to be clothed in glazed white terra-cotta, is still quite clean and fresh after four years of exposure to our notorious smoke nuisance. Hence, presumably, this material will soon receive the recognition its merits deserve. If our tall buildings were all glazed cream white or buff in color, with window shades of light, warm colors, there would certainly be less gloom and obscurity for our "Cliff Dwellers" on the lower levels.

The erection of a novel building will soon be begun by the congregation of All Souls Unitarian Church, whose pastor is the Rev. Jenkin Lloyd Jones. All precedents have been ignored, and a building has been designed to meet in the simplest, quietest,



SCHOOLHOUSE AND GATEWAY, TRURO, ENGLAND.

TERRA-COTTA PANEL, RESIDENCE, CINCINNATI.
Executed by the Northwestern Terra-Cotta Company.
M. H. Burton, Architect.

and most natural way the peculiar conditions imposed upon the architects. These required, besides a large auditorium with the usual accessories, a gymnasium, baths, etc., a store, and a free reading room on the ground floor in front of the auditorium, a suite of rooms for the Unity Club, a suite of living apartments for Mr. Jones, and four floors of offices and chambers, with a Masonic hall and its accessories covering the entire eighth floor. The exterior walls, which are isolated from other buildings on all sides, will be of solid brick construction, and the general scheme is dignified and plain, almost to severity, depending chiefly for its effectiveness upon largeness and coherence of composition and refinement of the very sparing detail. The auditorium will be barrel vaulted and richly treated in brick, mosaic, and plaster in Mr Wright's original way, which is a restrained and agreeably geometrified phase of "Sullivanesque." Frank Lloyd Wright and Dwight Heald Perkins are the associated architects.

TERRA-COTTA PANEL.
Executed by the New Jersey Terra-Cotta Company.
Kurtzer & Rohl, Architects.

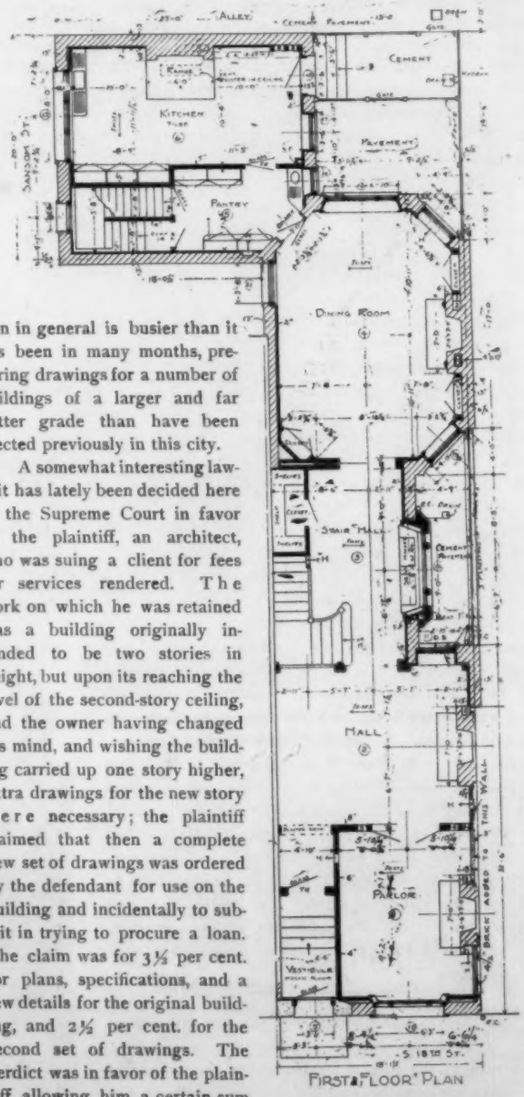
PITTSBURGH. — Real-estate business has already commenced to show such an improvement that there seems very good grounds for the opinion expressed everywhere that building operations here will be good this spring. There have been a number of sales of large tracts in the suburbs, where the buyers intend to build a number of blocks of houses, and there have also been a number of transfers of real estate in the business part of the city. There have been rumors of several large office buildings to be built this year.

Among the items of building news may be mentioned:—

Rutan & Russell are preparing plans for a new colonial residence to be built at Sewickley. Alden & Harlow have let the contracts for three large summer homes near Sewickley. F. J. Osterling is at work on a block of seven houses. W. Ross Proctor is at work on a new store and office building, to be built on Penn Avenue. It is to be built of brick with marble trimmings. He is also at work on plans for a house and gate lodge, to be built near Sewickley. J. E. Allison is the architect of a new brick colonial house on Pacific Avenue, East End. Work has been commenced on the Passavant Hospital. It is built of brick and stone, and costs $50,000. The Westinghouse Company are building large new shops and a five-story office building at East Pittsburgh. Thomas Rodd is the architect.

BUFFALO. — The feeling that the coming season will be one of comparative activity for architects, and consequently builders as well, seems to be widespread and assured, and already the profession in general is busier than it has been in many months, preparing drawings for a number of buildings of a larger and far better grade than have been erected previously in this city.

A somewhat interesting lawsuit has lately been decided here by the Supreme Court in favor of the plaintiff, an architect, who was suing a client for fees for services rendered. The work on which he was retained was a building originally intended to be two stories in height, but upon its reaching the level of the second-story ceiling, and the owner having changed his mind, and wishing the building carried up one story higher, extra drawings for the new story were necessary; the plaintiff claimed that then a complete new set of drawings was ordered by the defendant for use on the building and incidentally to submit in trying to procure a loan. The claim was for 3½ per cent. for plans, specifications, and a few details for the original building, and 2½ per cent. for the second set of drawings. The verdict was in favor of the plaintiff, allowing him a certain sum of money, which, taken together with what he had already received in the shape of remunera-



HOUSE FOR J. P. DOHERTY, ESQ., PHILADELPHIA, PA.
Cope & Stewardson, Architects.
(For elevations see plates 2 and 7.)

SYRACUSE UNIVERSITY BLOCK, SYRACUSE, N. Y.
Green & Wicks, Architects.

tion, amounted to 3½ per cent. on the first set, and about 1 per cent. on the second set.

Architect Waite has lately been commissioned by two of the largest corporations in Canada to prepare drawings for two immense structures, which are to be started as soon as possible. One of these two buildings is to be the new terminal station of the Grand Trunk Railroad at Montreal, and which it is expected will cost more than a million of dollars. It is also rumored that Mr. Waite has been retained by the Metropolitan Railway Company, of London, England, to make the designs for a large station in that city.

Mr. George J. Metzger, the local supervising government architect for the Federal Building, now in course of erection, having recently resigned his position, Mr. E. A. Kent, architect, this city, has been appointed his successor, and the appointment seems to be very pleasing to the others of the local fraternity.

The long-mooted resolution for purchasing of the four sites for new schoolhouses, which are so much needed, has again been postponed by the councilmen. One good plan, however, that our city fathers have lately adopted is that all future public schools are to be fire-proof as nearly as possible, and are to be built of more than sufficient size for the present number of scholars in each district.

A newly let contract calls for a large eight-story steel-constructed building on the northeast corner of Main and Mohawk Streets, of which Esenwein & Johnson are the architects. The contract calls for the building to be ready for occupancy March 31 next, with a heavy penalty if not completed on that day, and the same amount as bonus for each day if completed before that date. The limit of time allowance for such a building as this is almost if not totally unprecedented in this city, but it is confidently expected, in consideration of the class of firms engaged on the work, that the building will be finished in good season.

MANUFACTURERS' CATALOGUES AND SAMPLES DESIRED.

THE following-named architects would be pleased to receive manufacturers' catalogues and samples: Rowland & Bostwick, 504 Maeder Building, Pittsburgh, Pa.; Parr & Hulsebus, 514 Y. M. C. A. Building, Peoria, Ill.; Oscar Kuehue, 171 Center Street, Chicago, Ill.; Fred C. Watson, 8 Gerring Street, East Gloucester, Mass.

CURRENT ITEMS OF INTEREST.

E. E. NICKSON, 411 John Hancock Building, Boston, Mass., has been appointed agent for the Conkling-Armstrong Terra-Cotta Company.

THE ILLINOIS SUPPLY AND CONSTRUCTION COMPANY, of St. Louis, have just shipped on order 30,000 of their steel-gray brick to the city of New York.

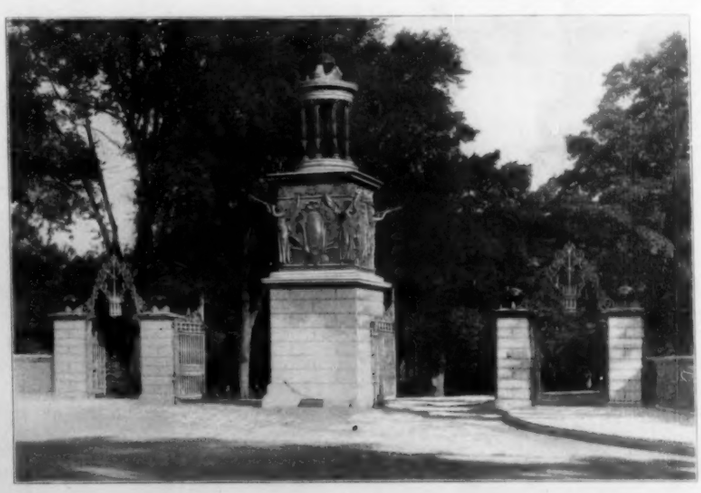
THE PITTSBURGH TERRA-COTTA LUMBER COMPANY have appointed Mr. E. E. Nickson, 411 John Hancock Building, as their representative.

THE FAWCETT VENTILATED FIRE-PROOF BUILDING COMPANY has been awarded the contract for the structural steel and fire-proofing to be used in the large printing house to be erected at Philadelphia for Walter Herring.

W. L. DAVIS, of Berlin, Conn., has just placed an order with Chambers Bros. Co. for a complete outfit of machinery to make hollow brick, which includes machines for making end-cut hollow brick, side-cut brick, an all iron and steel pug mill, clay elevator, shafting, pulleys, etc.

BURGY & MCNEILL, Pittsburgh, Pa., dealers in architectural clay products, are sending with their compliments a handsome calendar entitled "Three of a Kind"; the same referring to three *fin-de-siècle* young ladies of charming mien, who compose the subject of the illustration of the calendar.

THE WINKLE TERRA-COTTA COMPANY, St. Louis, are to supply



GATE AND GATE LODGE OF THE WOODLAWN CEMETERY, EVERETT, MASS.
Wall copings in dull green faience; balls, capping gate post, of dark green, high-glazed enamel. Faience and enameled work made by the Grueby Faience Company, Boston, Mass.
Wm. Hart Taylor, Architect.

the architectural terra-cotta on the following new contracts: Maccabers Temple, Port Huron, Mich., George L. Harvey, architect; the Republic Building, St. Louis, Isaac S. Taylor, architect.

THE ST. LOUIS TERRA-COTTA COMPANY is now making the white semi-glazed terra-cotta for a row of flats at St. Louis; and the silver-gray semi-glazed terra-cotta for the new Wittenberg Building, same city. They are also supplying the enameled terra-cotta for the C., B. & Q. R. R. Station at Creston, Iowa; the colors are to be cream and green.

IN accordance with a yearly custom, F. W. Silkman, 231 Pearl Street, New York, importer and dealer in minerals, clay, chemicals, and colors, has issued a very attractive calendar for 1899. The neatness and simplicity which characterize the design are gratifying in the agreeable contrast offered to the many flaunting incongruous subjects so freely used in calendar adornment.

THE AMERICAN MASON SAFETY TREAD COMPANY is making rapid progress in the erection of its new factory at Lowell, and has orders on its books requiring the employment of all its present facilities for many weeks to come. Among these orders is included work for seven vessels of the navy, and for schoolhouses, mills, and mercantile buildings in large cities throughout the country.

TERRA-COTTA DETAILS, PLUM BUILDING, NEWARK, N. J.
Executed by the Standard Terra-Cotta Company.
Thomas Cressey, Architect.

CHARLES BACON, Boston representative of Sayre, Fisher & Co., has recently closed the following new contracts: cream-white brick, residence, Brookline, Mass., J. A. Schweinfurth, architect; mottled gray brick, pumping station, Brookline, Mass., Shepley, Rutan & Coolidge, architects; plain gray brick, police station, Brookline, Mass., J. A. Schweinfurth, architect; mottled buff brick, residences, Pittsfield, Mass., Francis R. Allen and J. W. Vance, architects.

"ABSOLUTE FIRE-PROOFING" is the title of a little pamphlet just issued by Henry Maurer & Son, New York, for the purpose of explaining, in a manner clear to the ordinary understanding, the detail construction of what is known as steel-constructed fire-proof buildings. The little work covers its mission ably, and makes irrefutable arguments in support of this mode of construction. It has, we feel, a usefulness not confined to "laymen" merely, but extending to architects and builders as well.

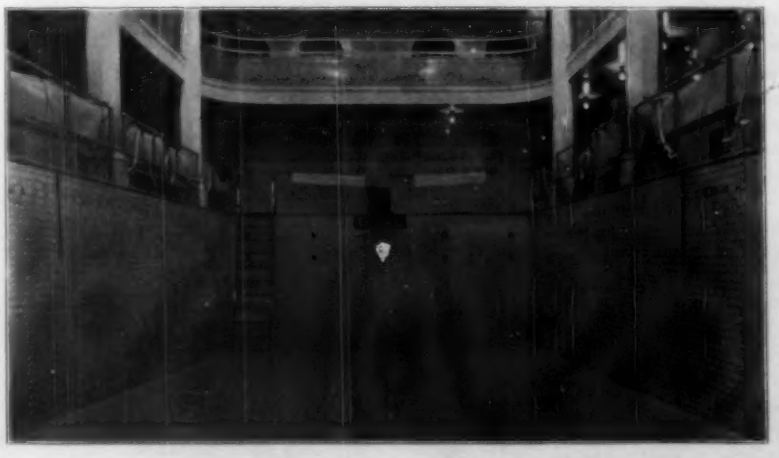
JOHN H. BLACK, Buffalo representative, will supply the Akron impervious red pressed brick to be used in the new Burgess Apartments, at Buffalo; also the glazed white terrra-cotta manufactured by the Excelsior Terra-Cotta Company, which is to be used in the same building, U. G. Orr, architect; also Kittanning gray bricks for the Mayer & Weill Building, of which Esenwein & Johnson are the architects.

A FEW of the prominent buildings in Greater New York in which the Bolles Revolving Sash or the Queen Overhead Pulley, or both, are now being incorporated are the following: the Vincent office building, New York City, sixteen stories, George B. Post, architect; the Bourne office building, New York City, Ernest Flagg, architect; sixteen-story office building, W. Wheeler Smith, owner and architect, next to the corner of Broadway and Wall Street, New York City; public schools, Mott Avenue, Audubon Avenue, Amsterdam Avenue, Brook Avenue, 169th Street, New York City, C. B. J. Snyder, architect; New York Hospital, Cady, Berg & See, architects; Byrnes apartment house, Fifth Avenue and 45th Street.

THE new catalogue issued by Chambers Bros. Co., Philadelphia, is deserving of special comment as being most comprehensive in the information contained relative to machines for making brick by the stiff-tempered process. It is no mere list of clay-working implements, but is a carefully compiled treatise, giving a technical description of the mechanical construction of their various machines, and the special adaptation of each for manipulating clays of peculiar characteristics.

The catalogue contains some one hundred and twenty pages of text matter and some hundred illustrations of different machines made by the company. Aside from matter relative simply to these machines, there is much data and general information concerning the stiff-tempered process of brick making.

For some thirty-five years now, the company has been prominently identified with this process of clay-working implements, and during that time has won for itself a national reputation for building machinery of the highest standard of quality and ingenuity. They were the pioneers in the field of this line of manufacture. It is of interest to note, as showing the immense developments in the clay industries, that when application was made by them for their first patent on brick machines, the invention was so novel that not a single patent had been granted by the United States Patent Office for that class of brick-making implements. Lack of space does not permit



SWIMMING TANK, NEW YORK ATHLETIC CLUB.
Lined with enameled brick manufactured by the American Enameled Brick and Tile Company.
William Cable, Architect.
The floor is laid with brick glazed on the flat; the sides are lined with regular brick, English size.

us to review the work in detail, but we would strongly recommend it to all clay workers as being a publication which would be of material benefit to them to read. The company will be glad to mail the same on application.

WARREN, PA., HIGH SCHOOL.
Faced with 150,000 light buff brick made by the Dagus Clay Manufacturing Company.
J. W. Shaw, Architect.

AGENCIES WANTED.

WANTED TO SELL ON COMMISSION ALL KINDS OF BRICKS. QUOTE PRICES, AND SEND SAMPLES TO GEORGE F. KICHLINE, EASTON, PA.

Cabot's Mortar Colors

BRILLIANT, DURABLE, RELIABLE

Not the lowest priced, but so strong and durable and so easy to work that they are actually the cheapest. Used fifteen years by people who insist upon *quality*.

Cabot's Brick Preservative

The only waterproofing for brickwork that is permanent. Three times as waterproof as linseed oil, and goes farther. Prevents water-soaked walls, efflorescence and disintegration by frost.

Send for circulars and prices.

SAMUEL CABOT, Sole Manufacturer,
70 Kilby Street, Boston.

Very Effective.

Price, $26

for the red face and molded brick necessary to lay a Fireplace Mantel (including tile hearth) as shown in this picture. The brick would be carefully packed in barrels, and delivered f. o. b. cars at Boston. Scale setting plan furnished also. There's nothing so artistic and suitable for Fireplace Mantels as our Ornamental Brick. Our mantels are the newest, the richest, and the best in every way. Our customers say so. Our Sketch Book tells all about 53 of our own designs, and our Detail Catalogue will help an architect to prepare special designs. Either or both will be sent you free on request.

Phila. & Boston Face Brick Co., 45 Liberty Square, Boston, Mass.

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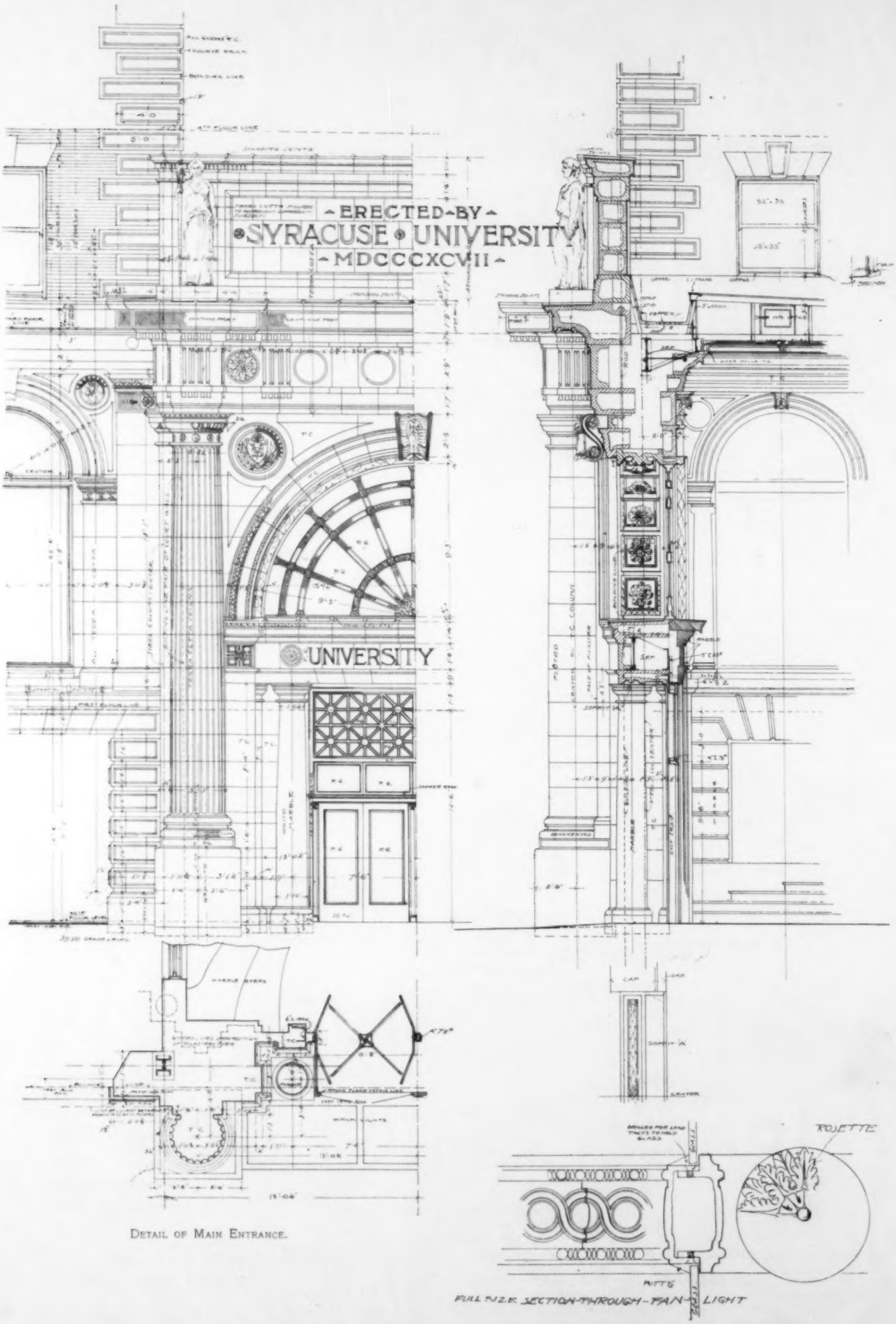
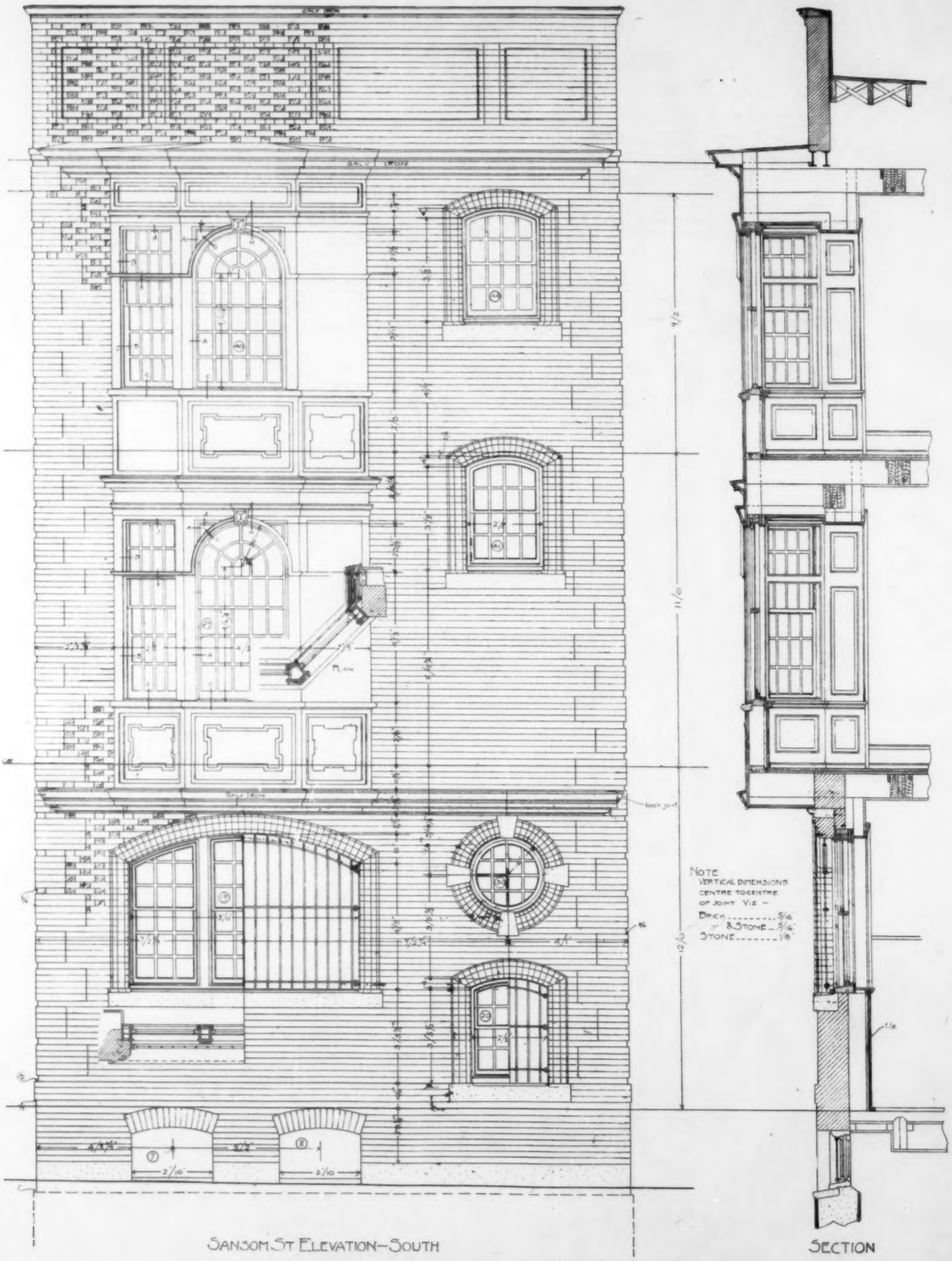


Detail of Main Entrance.

SYRACUSE UNIVERSITY BLOCK, SYRACUSE, N. Y.

GREEN & WICKS, Architects.

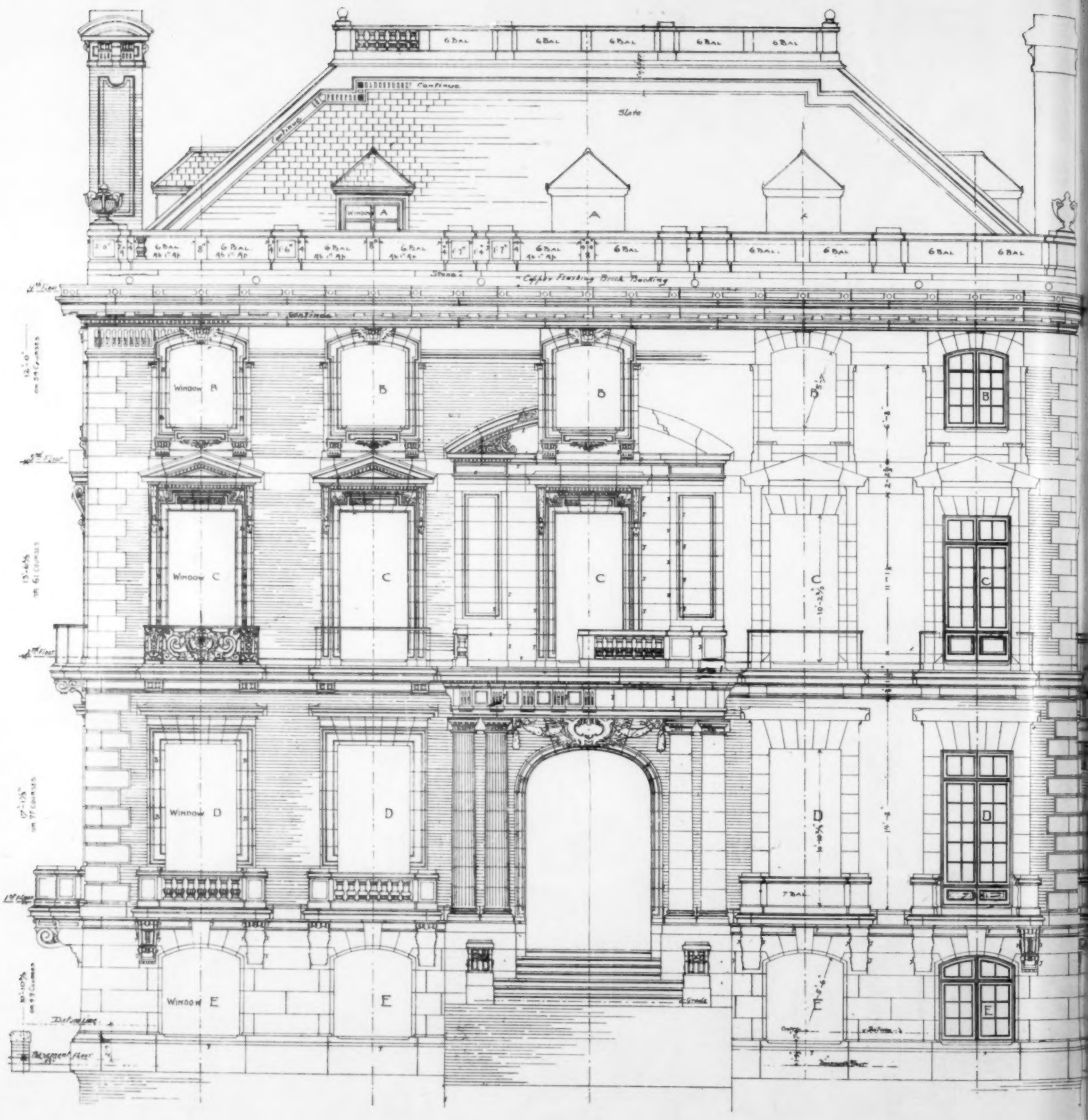
(Elevation shown on page 19.)



HOUSE FOR JOHN P. DOHERTY, ESQ., PHILADELPHIA, PA.

COPE & STEWARDSON, ARCHITECTS.

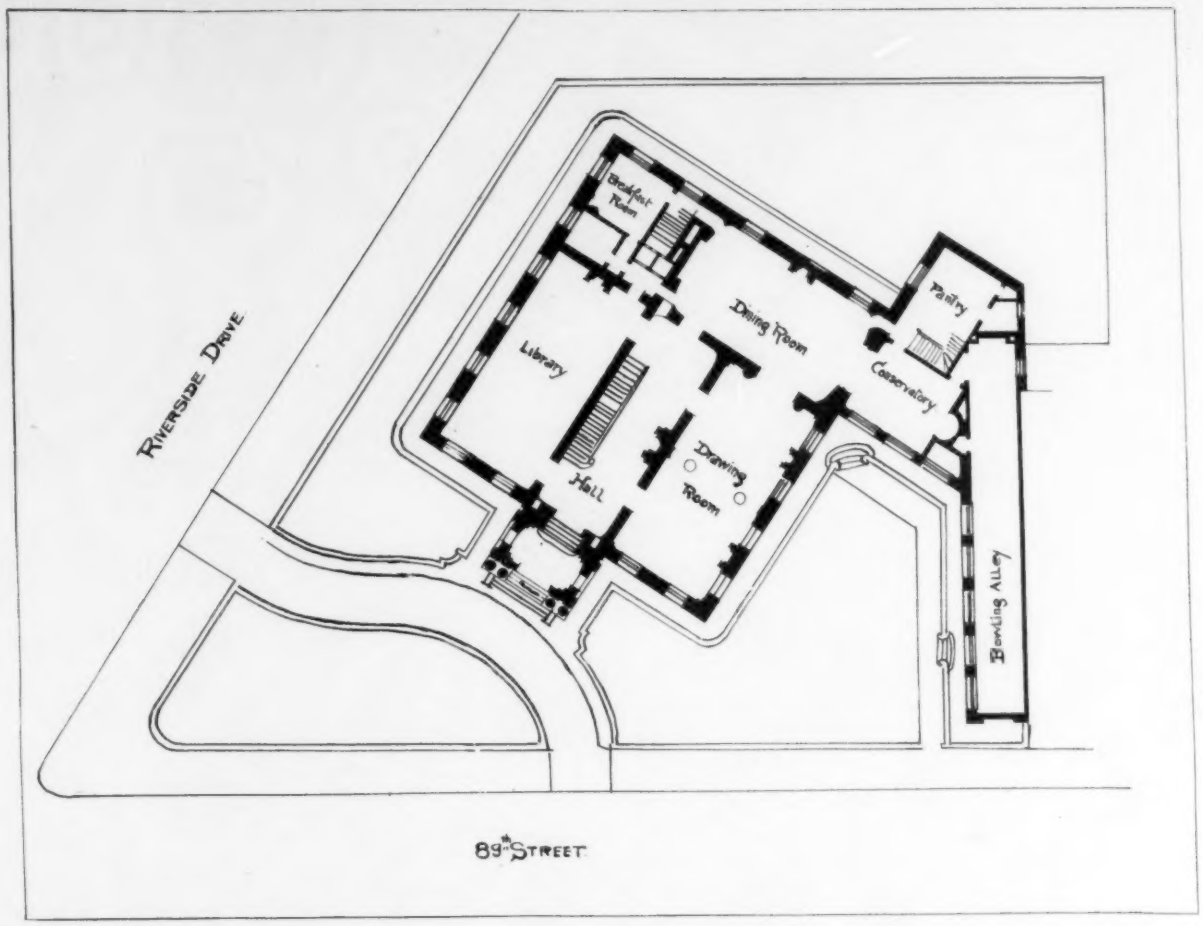
(Plan shown on page 18.)

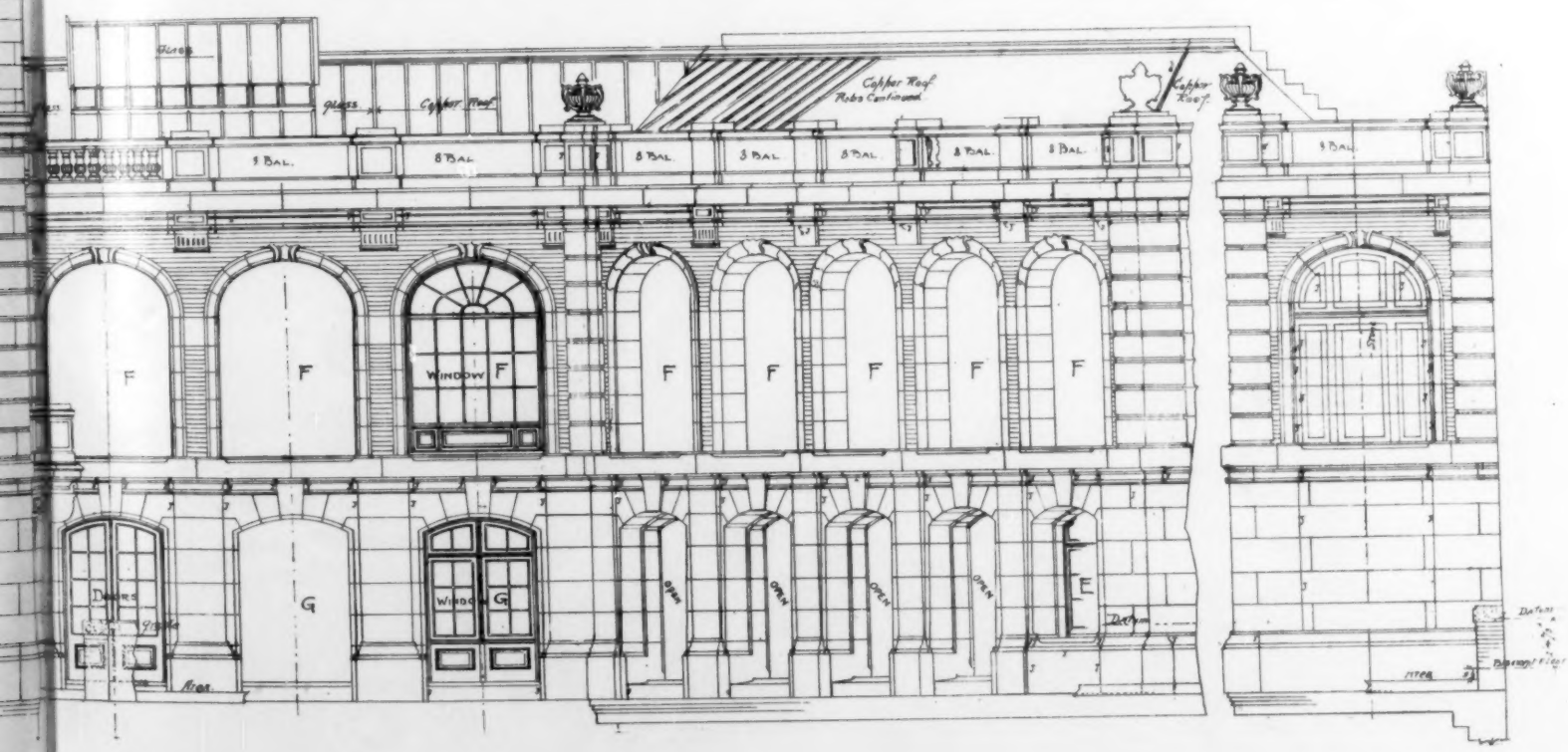


South Elevation.

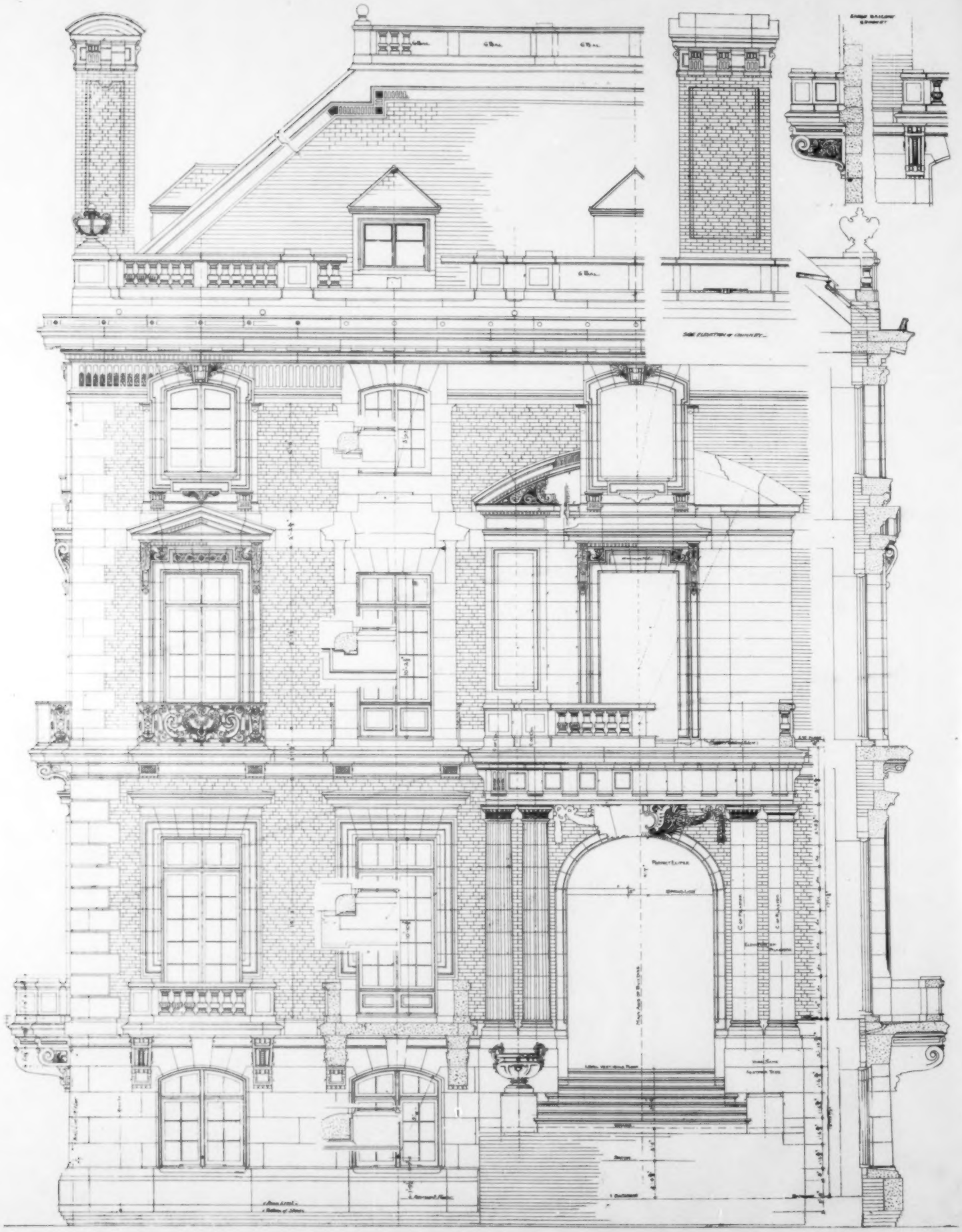
RESIDENCE, RIVERSIDE DRIVE, N

ERNEST FLAGG, Architec





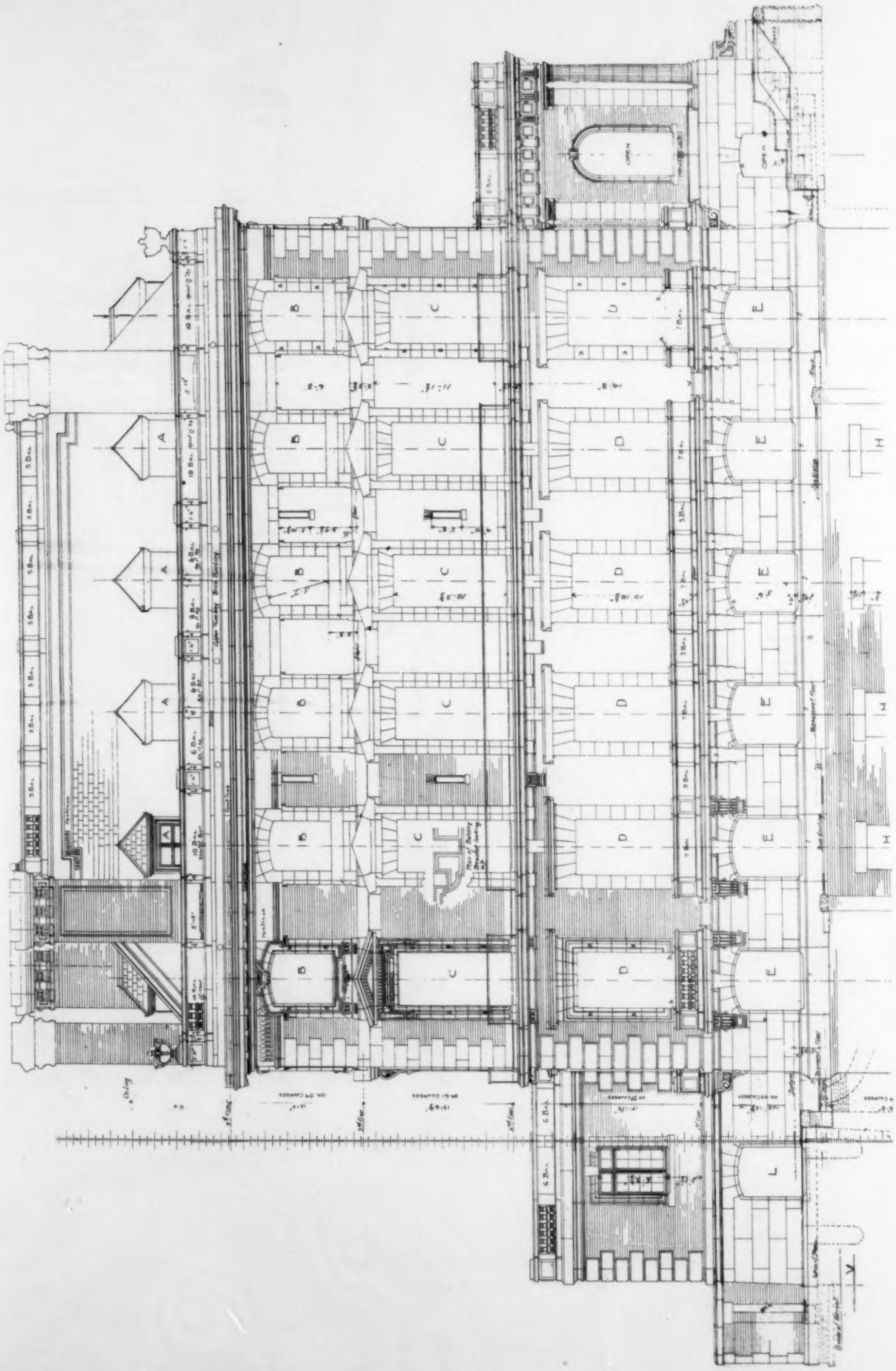
UTH ELEVATION.
IDE DRIVE, NEW YORK CITY.
FLAGG, ARCHITECT.



DETAIL OF FRONT ELEVATION.

RESIDENCE, RIVERSIDE DRIVE, NEW YORK CITY.

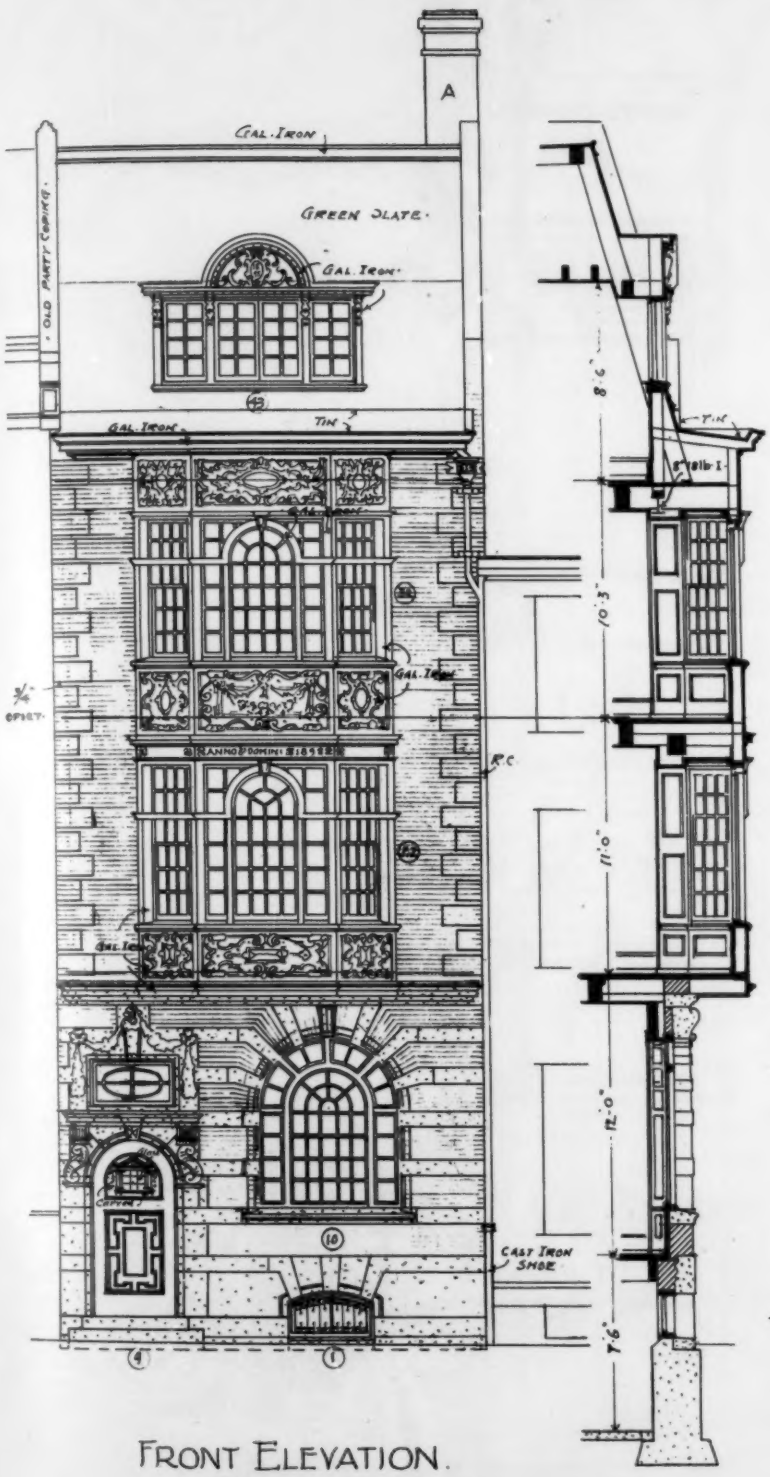
ERNEST FLAGG, ARCHITECT.



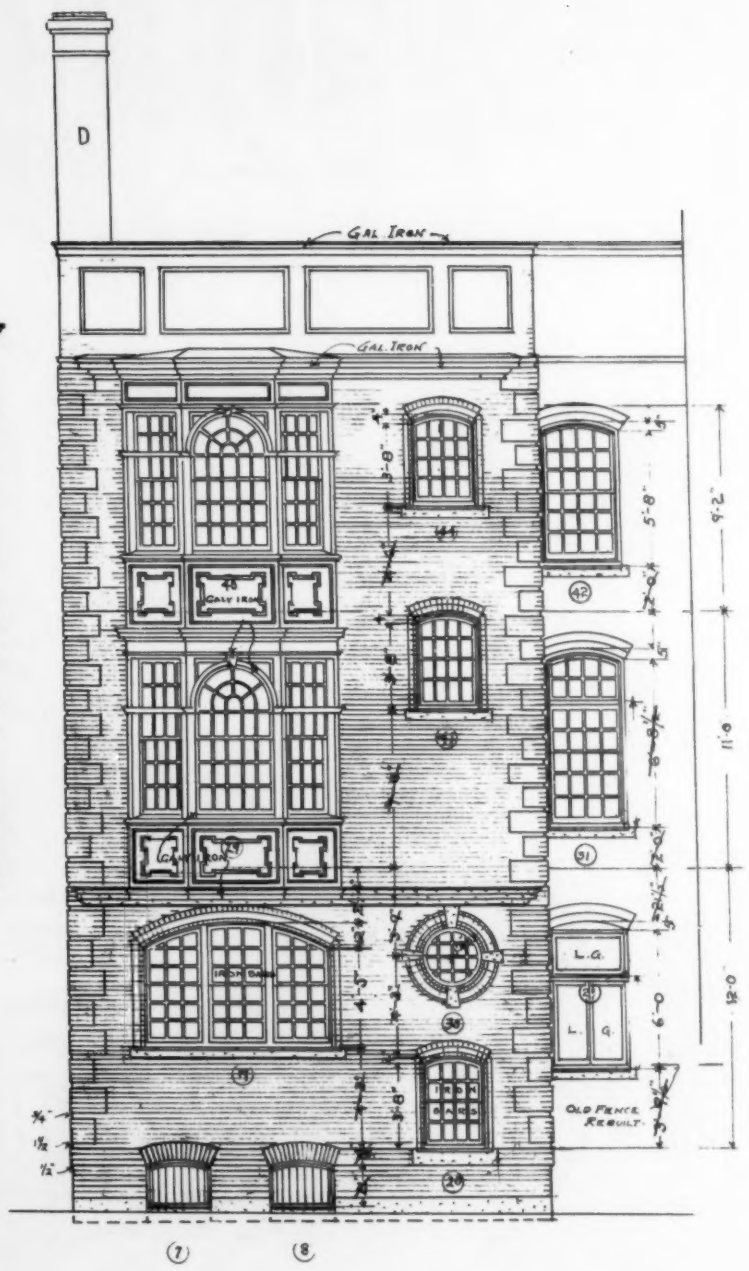
WEST ELEVATION.

RESIDENCE, RIVERSIDE DRIVE, NEW YORK CITY.

ERNEST FLAGG, ARCHITECT.



FRONT ELEVATION.
EAST.

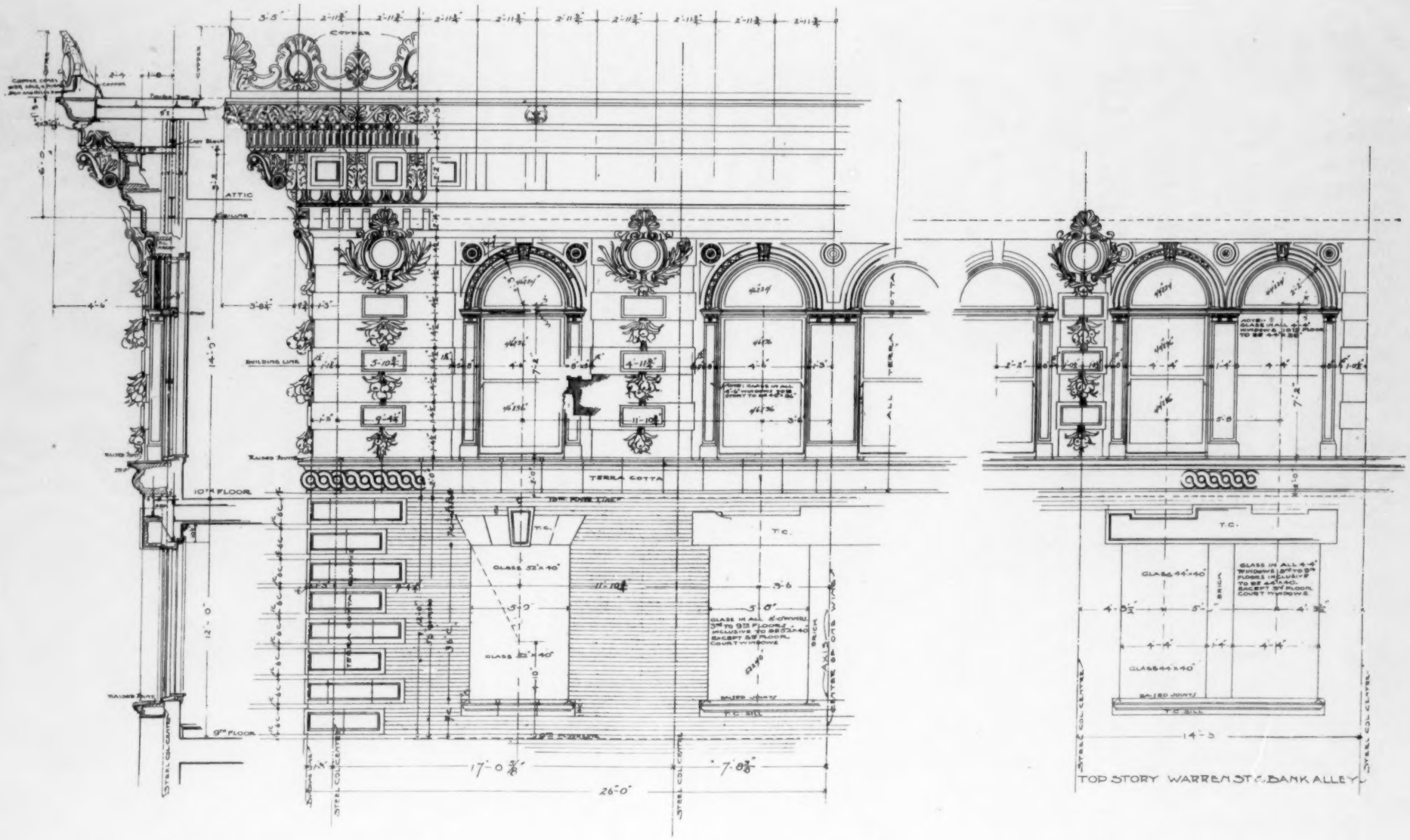


SANSOM STREET ELEVATION.
SOUTH.

HOUSE FOR JOHN P. DOHERTY, ESQ., PHILADELPHIA, PA.

COPE & STEWARDSON, ARCHITECTS.

(Plan shown on page 18.)



DETAILS OF TOP STORIES AND MAIN CORNICE.

SYRACUSE UNIVERSITY BLOCK, SYRACUSE, N. Y.

GREEN & WICKS, ARCHITECTS.

(Elevation shown on page 19.)